

40

Years of

PLASTIC SURFACING



by R O X A L I N

PIONEERS IN PRODUCT FINISHES ENGINEERED FOR SPECIFIC PERFORMANCE



ROXALIN *Flexible* FINISHES
INCORPORATED
ELIZABETH, F • NEW JERSEY

Plastics ...on the surface

In spite of the current emphasis on molded, cast and extruded plastics, few manufacturers have recognized the full possibilities of the *plastic surface* in extending the life, enhancing the appearance and insuring the functional performance of their products.

This book is designed to throw a new light on this important utilization of plastics, and to help you realize the far-reaching possibilities of such materials where your particular products and problems are concerned.

But before we get into the subject, you will want to know something about us—and why we consider ourselves authorities on plastic surfacing.

That is a story that takes us 'way back to 1924.



Copr. 1944, Roxalin Flexible Finishes Inc.
Printed in U. S. A.

(1944)

HOW ROXALIN BECAME *Pioneers in Plastic Surfacing*



Twenty years ago Roxalin set up shop to furnish American industry with product finishes engineered for specific performance. Right from the start, the company concentrated its research and production capacities on finishes derived from the compounds which in cast, molded or extruded form are known to the public as plastics.

TWELVE THOUSAND FORMULAS

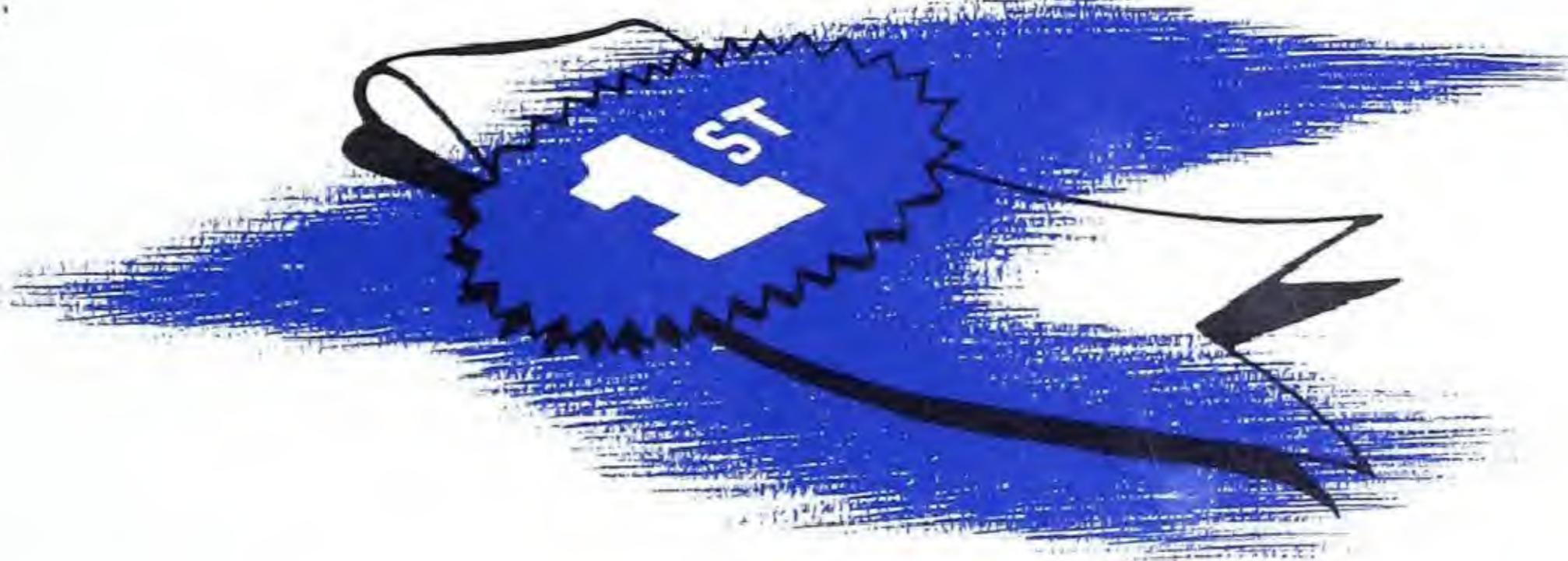
In these years we have produced large quantities of surface coatings. Our files for specific finishes alone contain over 12,000 different formulas. Each of these formulas represents a problem brought to us by a customer—and solved to his satisfaction.

Too much emphasis cannot be placed on the part the technical man plays in working out finishing problems. That is why our laboratories are staffed by men who have worked for years with plastics—who have acquired an ever-growing skill in transforming the desirable properties of plastics to surface coatings.



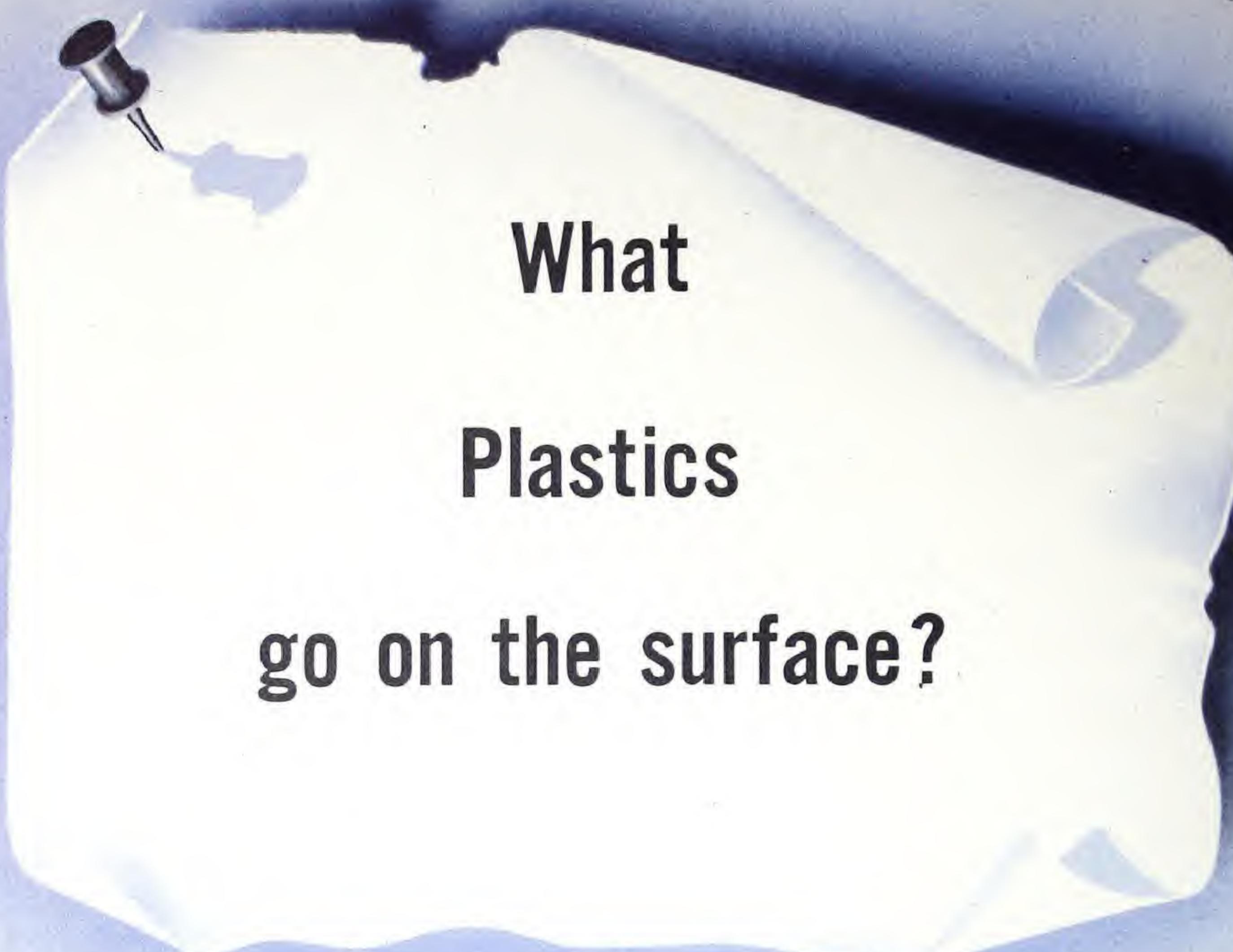
THE LABORATORY IS THE HEART OF THIS BUSINESS

Their experience is important because a plastic in the form used by the custom molder usually requires intensive study and manipulation before its full potential value in protective coatings can be realized. It's a ticklish job to work out problems of color, abrasion and chemical resistance in thin films—and proper adhesion to different types of surfaces.



PLASTICS ARE NOT A PANACEA *but*

when the plastic finish is properly formulated with a specific job in mind, it is hard to beat. It can add warmth and protective qualities to wood and metal or give new beauty, strength and functional qualities to paper, textiles, rubber, glass and even to molded plastics themselves.



What Plastics go on the surface?

'Bakelite'... 'Lucite'... 'Tenite'

Famous names in plastics all—each possessing special qualities that have made it indispensable to modern industry.

But did you know that the basic plastic compounds for which there are many trade names like these have been transformed into surface coatings... which possess properties inherent in the solid plastics?

Here are some of the well-known plastics and their outstanding properties which, over the course of 20 years, Roxalin engineers have embodied in special purpose coatings.

Nitrocellulose

YOU HAVE HEARD OF IT AS...

'Amerith'
'Celluloid'
'Hercules NC'
'Nixonoid'
'Pyralin'

YOU MAY HAVE SEEN IT MOLDED INTO...

Galloping dominoes or piano keys



IT MAKES A SURFACE COATING THAT...

air dries quickly;
resists marring;
polishes to rich gloss;
resists oil and gasoline;
Is toughest of all plastics;
resists moisture, acid and mild alkali



Phenolics

YOU HAVE HEARD OF THEM AS...

'Bakelite'

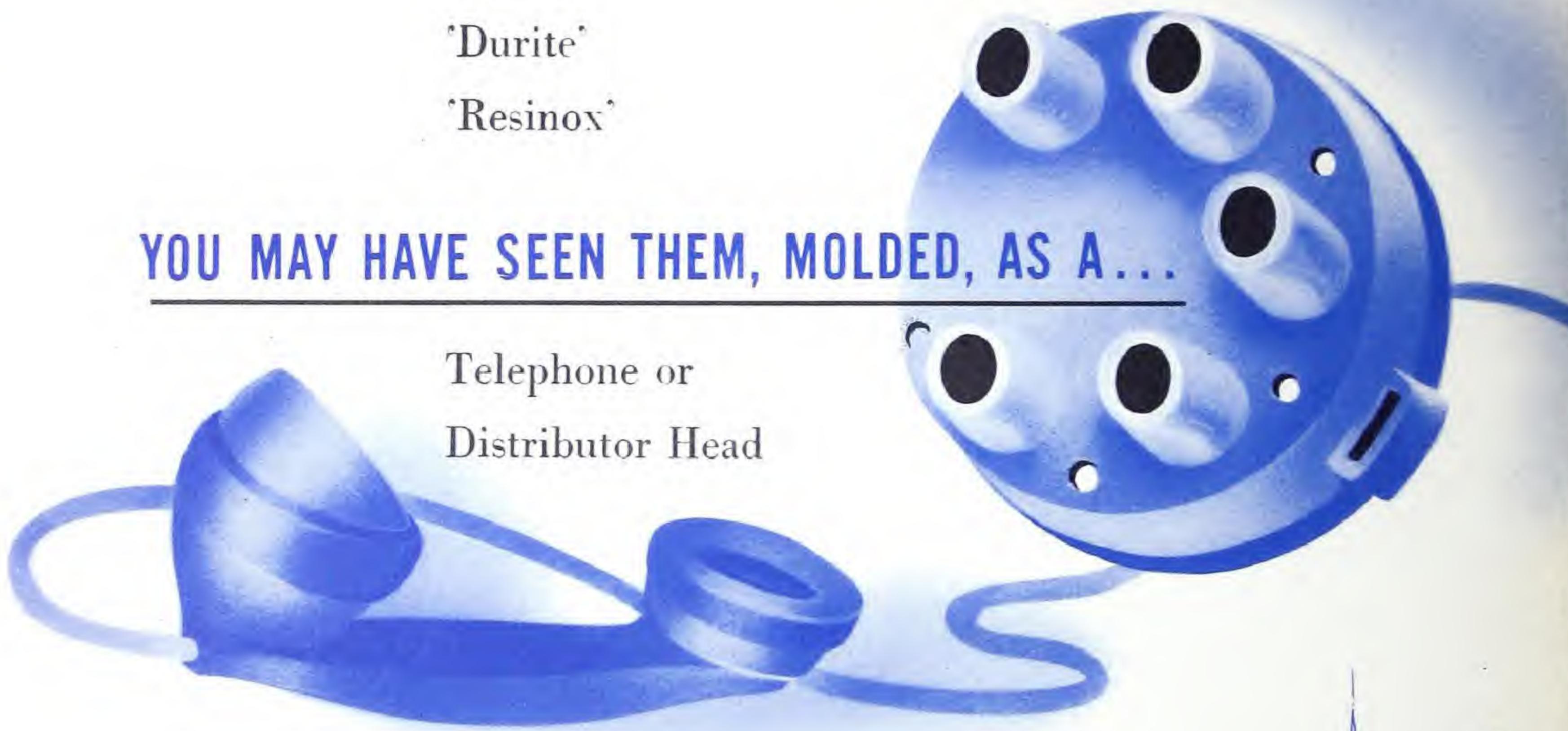
'Durez'

'Durite'

'Resinox'

YOU MAY HAVE SEEN THEM, MOLDED, AS A...

Telephone or
Distributor Head



THEY MAKE A SURFACE COATING WITH...

high chemical resistance

solvent resistance

strength against electrical breakdown

Good water resistance



Ethyl Cellulose

YOU HAVE HEARD OF IT AS...

'Ethocel'

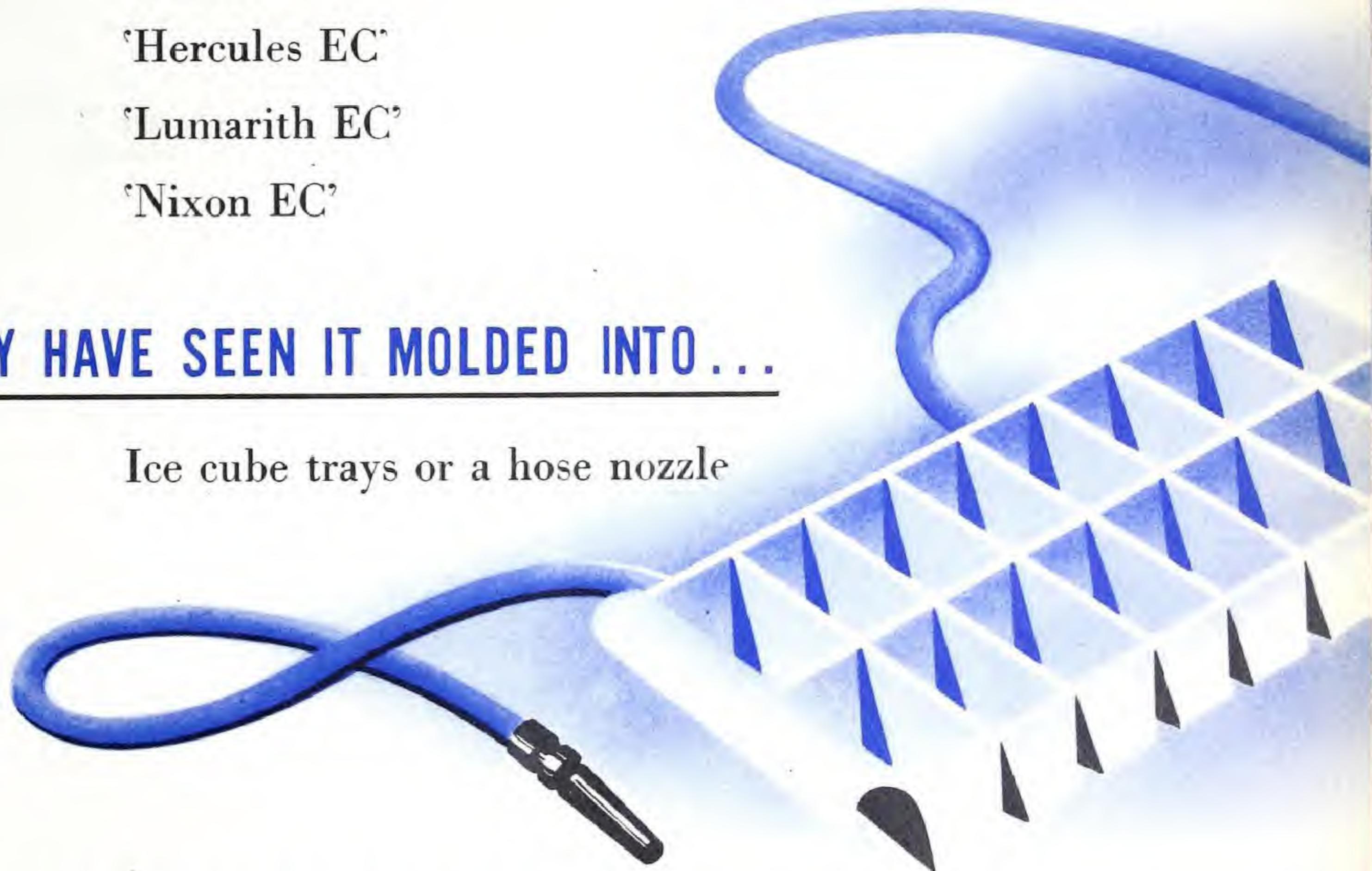
'Hercules EC'

'Lumarith EC'

'Nixon EC'

YOU MAY HAVE SEEN IT MOLDED INTO...

Ice cube trays or a hose nozzle



IT MAKES A SURFACE COATING THAT...

resists heat;

does not yellow in sunlight;

Has low temperature flexibility;

resists acid and alkali



Vinyl Chloride COPOLYMERS Vinyl Acetate

YOU HAVE HEARD OF THESE AS...

'Koroseal'

'Vinylite'

YOU MAY HAVE SEEN THEM, IN SOLID FORM, AS...

Closures

Radio transcription records

Unbreakable watch crystals

THEY MAKE SURFACE COATINGS THAT...

protect against food acids;

Prevent corrosion;

resist abrasion;

retain their flexibility



Cellulose Acetate

YOU HAVE HEARD OF IT AS...

- ‘Lumarith’
- ‘Plastacele’
- ‘Tenite I’
- ‘Nixonite’

YOU HAVE SEEN IT MOLDED INTO...

- A steering wheel or
toothbrush



IT MAKES A SURFACE COATING THAT HAS...

- low flammability;
- quick air drying properties;
- marproofness;

Does not yellow in sunlight



Urea and Melamine

YOU HAVE HEARD OF THEM AS...

'Beetle'
'Plaskon'
'Catalin'
'Uformite'



YOU MAY HAVE SEEN THEM, MOLDED, AS...

Lighting fixtures
Tableware



THEY MAKE SURFACE COATINGS WITH...

extreme hardness;
Great mar resistance;
excellent resistance to solvents;
good color permanence



Polyvinyl Alcohol

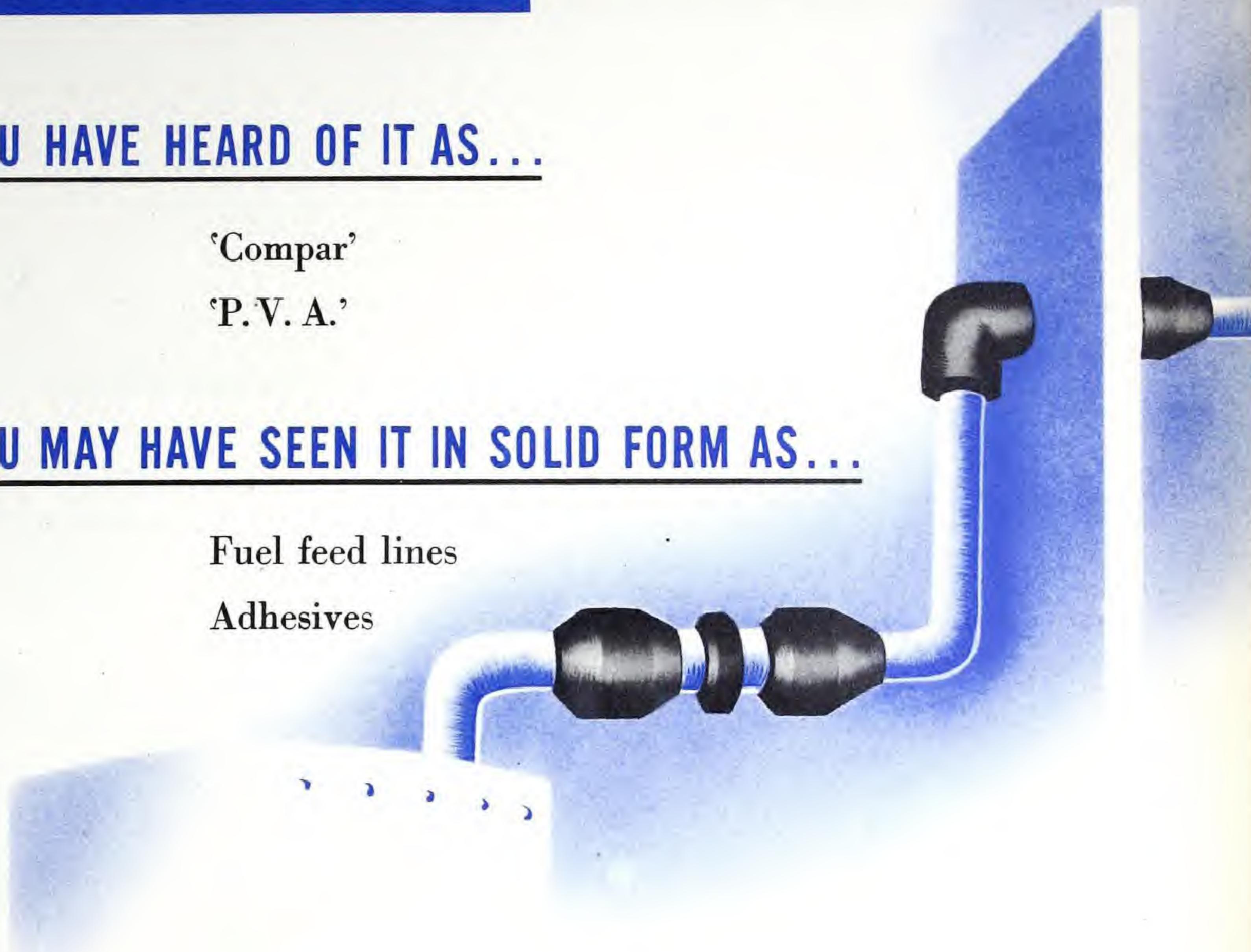
YOU HAVE HEARD OF IT AS...

'Compar'
'P. V. A.'

YOU MAY HAVE SEEN IT IN SOLID FORM AS...

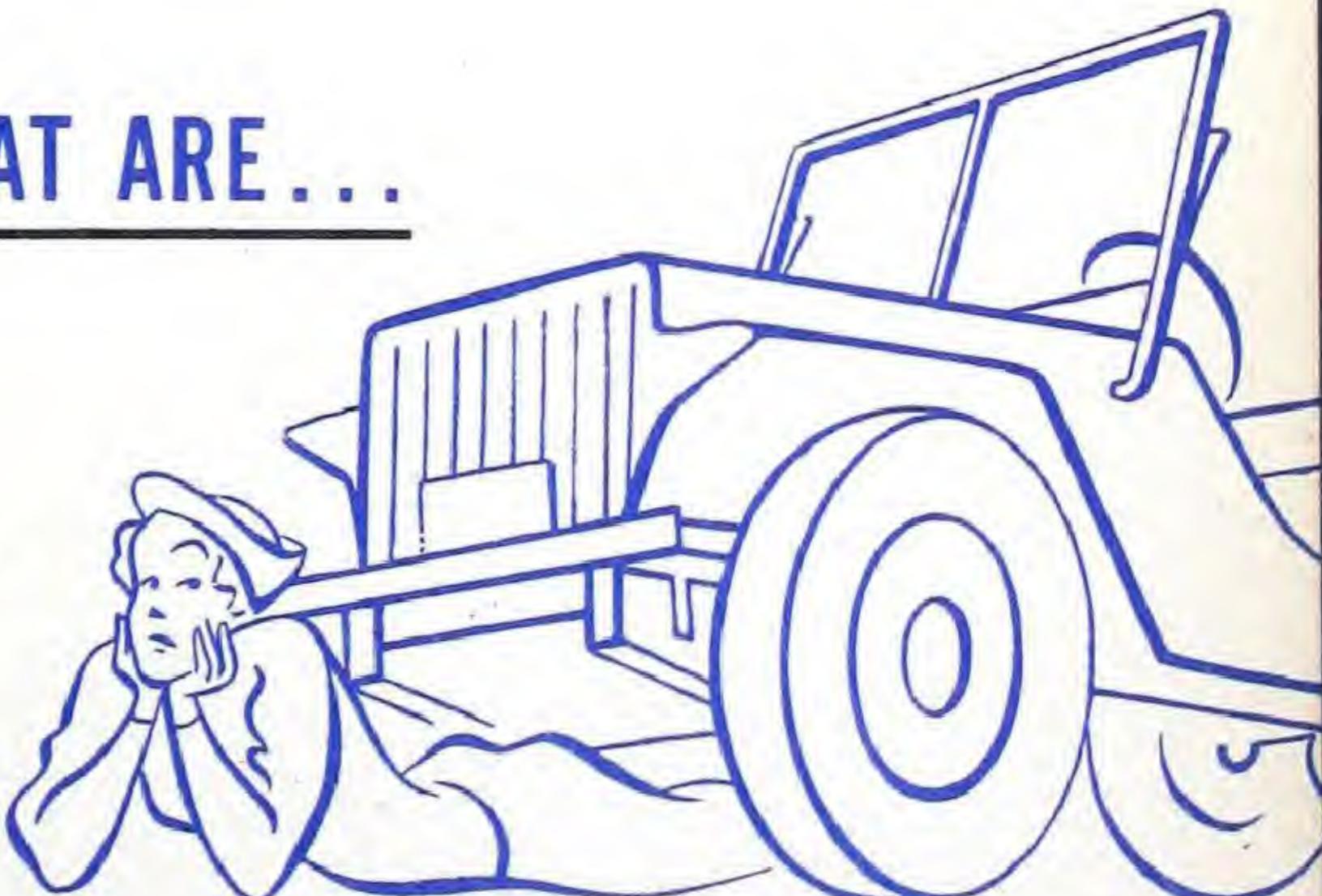
Fuel feed lines

Adhesives



IT MAKES SURFACE COATINGS THAT ARE...

tasteless;
Gasoline and oil resistant;
odorless



Acrylates

YOU HAVE HEARD OF THEM AS...

'Acryloid'

'Lucite'

'Plexiglas'

YOU MAY HAVE SEEN THEM AS...

A pipe stem or an aircraft nose



THEY MAKE SURFACE COATINGS THAT...

Are clear and colorless;

Have good weather resistance;

Resist chemical fumes;

resist moisture;

do not yellow in sunlight



Polyvinyl Butyral

YOU HAVE HEARD OF IT AS...

'Butvar'

'Butacite'

'Saflex'

'Vinylite'

YOU MAY HAVE SEEN IT IN SOLID FORM AS...

The interlayer in safety glass

Self sealing gasoline tanks

Life rafts



IT MAKES A SURFACE COATING THAT HAS...

good insulating properties;

Excellent elasticity;

high film strength;

non-yellowing characteristics



Rubber-like Elastomers

YOU HAVE HEARD OF THEM AS...

'Thiokol'

'Neoprene'

'Hycar'

YOU MAY HAVE SEEN THEM AS...

A gasoline hose or tire



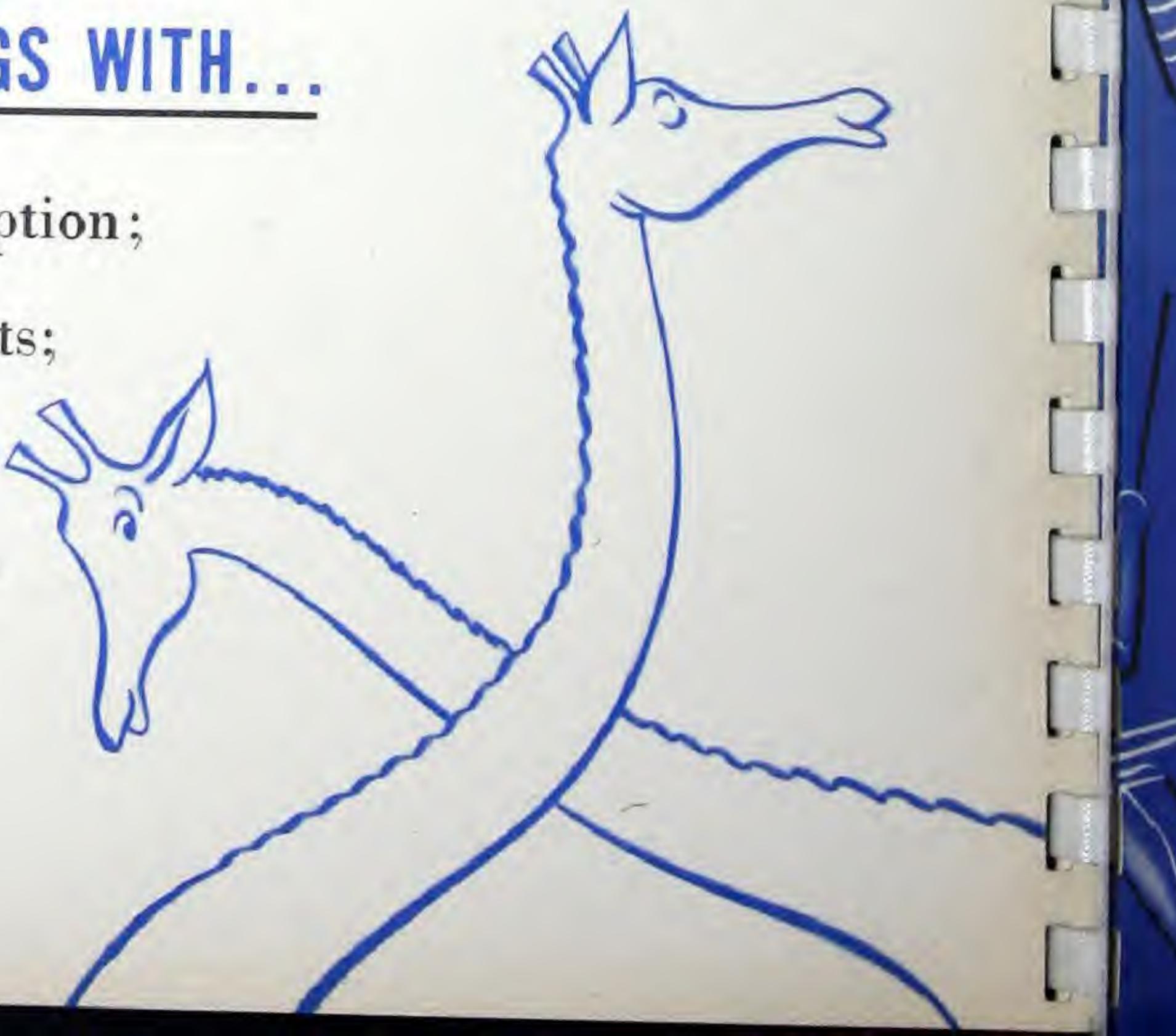
THEY MAKE SURFACE COATINGS WITH...

low moisture absorption;

resistance to solvents;

Good flexibility;

chemical resistance



THE PLASTIC SURFACE ON THE JOB

Suppose Rip Van Winkle was an industrial engineer and started his little nap in 1924.

In few fields would he find the spectacular improvements that have taken place in product finishing in the twenty years that plastic surfacing has been on the job.

In that time thousands of manufacturers have turned to Roxalin for help. And whether their problems were of economy, durability, beauty or ease of application, our engineers have come up with the right finish—a plastic base coating specifically engineered for their product.

Our thousands of individual, custom-made formulations do not lend themselves to catalogue description, but we are outlining on the following pages a group of our standard products together with examples of their use. These are actual case histories taken from our files, to illustrate the tremendously important job that plastic surfacing is doing for American industry. We think they will give you an idea of the job that plastic surfacing can do for you.

	PAGE
METAL COATINGS	16-33
FABRIC COATINGS	34-36
WOOD COATINGS	37-39
ELECTRICAL CABLE COATINGS	40-41
PLASTIC COATINGS	42
MISCELLANEOUS COATINGS	43



BLUE KNIGHT FLEXIBLE LACQUER AND *The Steel Strip that wouldn't Peel*

A well-known paper box manufacturer had a problem

He had greatly increased the strength of his boxes by reinforcing the edges with a metal strip—but he wanted these strips to match the various colors of the box.

Beyond possessing the proper color, he needed a finish which could be roller coated at the steel mill on raw, cold-rolled steel (continuous strip) which would also withstand the following operations:

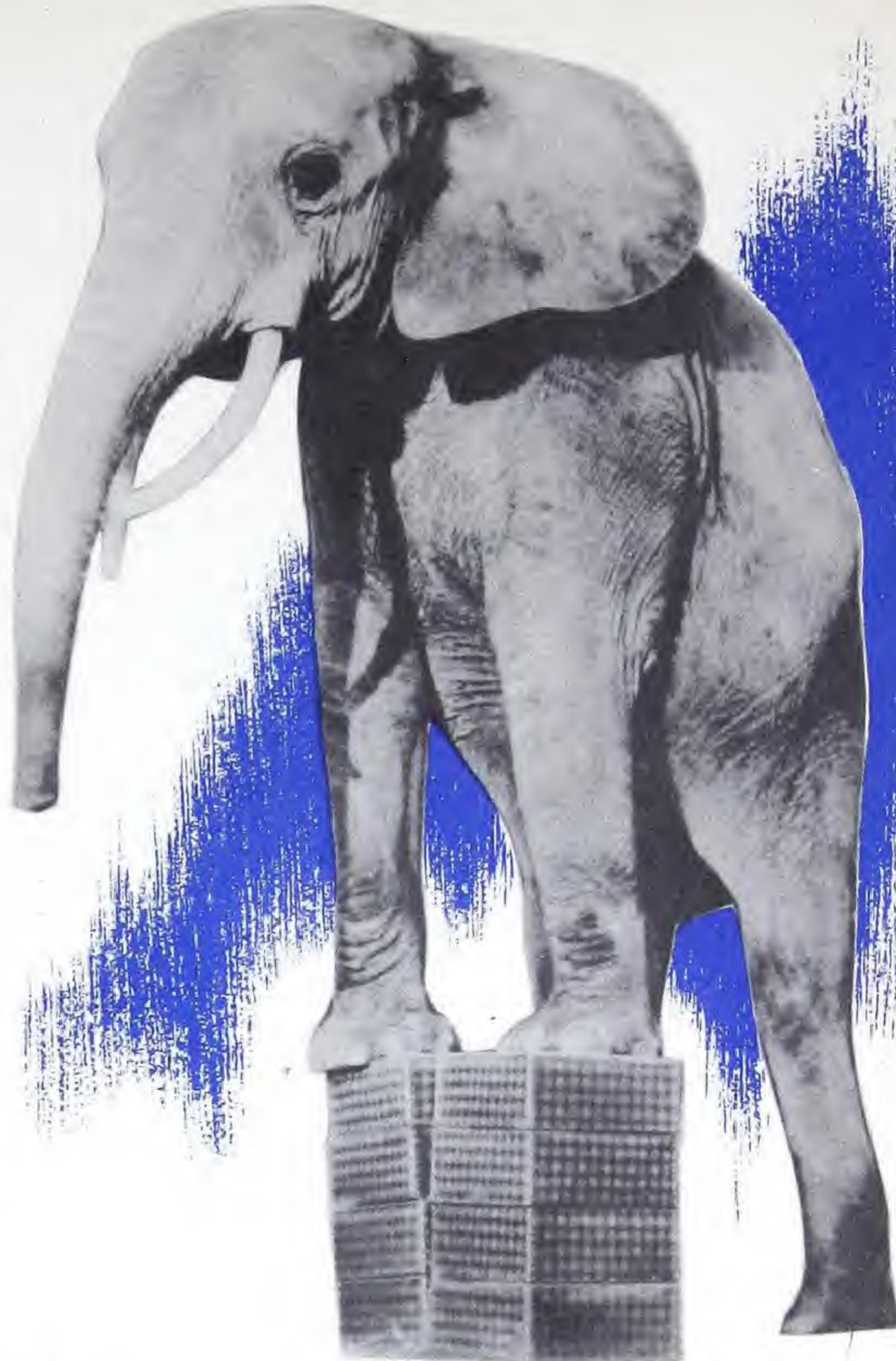


1. Reeling into tight coils after finishing.
2. A long storage period, coated with lube oil.
3. Slitting to width, blanking and punching.
4. Re-reeling in 300 ft. coils.
5. Aging during another storage period (up to 2 years).
6. Feeding the edging through the stayer, which cuts the strip to the right length, applies it and crimps it in place on the box corners.
7. After taking this kind of a beating, to present a clean, bright, unbroken appearance and to survive, as part of the box, the rough handling of packing and shipping.

In other words Mr. Paper Box manufacturer
wanted BLUE KNIGHT FLEXIBLE LACQUER

This one coat air-dry enamel filled the bill in every way. It stood up under this unusual manufacturing cycle—and was still in there pitching when the boxes were put to work.

The necessary properties of adhesion and flexibility which make this Roxalin Blue Knight Enamel so outstanding for such work have been engineered into the finish by men familiar with the surface coating possibilities of plastics. Blue Knight air-dry lacquers have such plasticity that finished metal sheets can be stretched or compressed under forming dies without injury to the coating, not only when fresh, but for as long a period of time as 15 years after application.



Josephine

**from the Circus
poses to prove
strength of metal
edge boxes.**

Your product may never feel the dainty caress of an elephant's foot in transit, but the bull-dog grip that Roxalin Flexible Lacquers take on steel, brass, aluminum and die-castings assures a lasting attractive finish.

SPECIFICATIONS

Trade Name: Blue Knight Flexible Lacquers; Blue Knight Flexible Blax.

Colors: Black, White, all primary colors and tints.

Appearance: Smooth.

Gloss: Complete range, from full gloss to optically flat or non-specular.

Drying: 3-12 minutes for handling at 70° F. Time depends on thickness of applied film, humidity, etc. (Force drying at 180-200° F. or under infra-red lamps is practicable).

Application: Dip, spray, roller coat, or centrifugal.
Not recommended for brushing or tumbling.

DESIRABLE PROPERTIES

Adhesion: Perfect and permanent on clean

steel	aluminum	brass
nickel	copper	tin
	glass	

Resistance to:

Abrasion—Good—876 cycles per .001 in.

(Taber Abrasiometer).

Butter Fat—Good

Gasoline—Excellent.

Lubricating Oil—Excellent.

Moderate Heat—E

Flexibility: Excellent; permits fabrication of pre-finished parts. Actually improves with age.

ROXAPRENE TYPE 1C

for corrosion resistance

11



THE FINISH THAT WAS MONEY IN THE BANK

Air conditioning equipment takes a beating.

Constant exposure to acids and alkalis is its daily lot. Naturally it takes a tough finish to stand an environment like this—and that's where Roxaprene comes into the picture.

Formerly, galvanizing was the only sure protection, and only heavy steel could withstand warping when hot-dipped in the galvanizing bath.

But with the utilization of Roxaprene as a protective coating lighter gauge metal can be used with resultant savings in weight and cost.

Just another instance of Roxalin putting money in the bank.

ROXAPRENE—THE EASY-TO-APPLY CORROSION-RESISTANT FINISH

There are a number of built-up finishes that resist corrosion. But practically without exception they have to be baked on at high temperatures and are otherwise difficult to apply.

For a long time industry needed an air dry finish that would protect metal from the corrosive action of harsh caustics, acids and brine. It was generally recognized that chlorinated rubber being inert to chemical attack was a logical base for such a finish. But attempts to make it into a satisfactory surface coating had failed.

However, Roxalin chemists with their experience gained in plasticizing other materials were able to endow it with the required flexibility and adhesion.

Industry at last had an air dry finish that was corrosion-resistant.

ROXAPRENE WON ACCEPTANCE THROUGH TESTS LIKE THESE

An early commercial proof of the stamina of Roxaprene corrosion-resistant coatings came from the laboratories of a world-famous manufacturer of air conditioning equipment. They placed coated panels directly under a continuous 5% calcium chloride brine spray, with a pressure represented by a head of 8 feet of water.

Coated panels were scratched through to the metal to permit observation of corrosion creepage. All finishes tested, which included various types commercially available, failed at the end of 2,000 hours except the Roxaprene finished panels. They were still in good condition at the end of 6,000 hours in this brine exposure. At this point the test was discontinued.

In some cases, acid inhibitors are added to brine solutions and Roxaprene will withstand corrosive attack whether inhibitors result in making the brine solution acid, or whether inhibitors are left out which results in an alkaline solution.

Roxaprene compared with corrosion resistant type of oleoresinous finish



Roxaprene after 20 days' immersion in 2% caustic.



Oleoresinous finish after 1 day's immersion in same solution.



Oleoresinous finish after 26 days in salt spray.

SPECIFICATIONS:

Trade Name: Roxaprene Type 1C.

Colors: Black and all colors to fairly light tints; use of pure white is not recommended.

Gloss: Made in full lustre only.

Application: Spray, dip or brush.

Drying Properties:

Air Dries: Dust free—10-15 minutes.

Ready to handle in less than 1 hour.

Ready to recoat in 4-6 hours.

Heat Curing: Any temperature up to 275° F.

Suggested curing cycles are:

1 hour at 180° F.; or

30 minutes at 250°-275° F.

DESIRABLE PROPERTIES:

Quick air set, insuring clean, dust-free films (finish failure often starts with dirt specks in the film as nuclei).

Ease of application—may be sprayed, brushed or dipped.

Cures completely without heat, but may be force dried if desired.

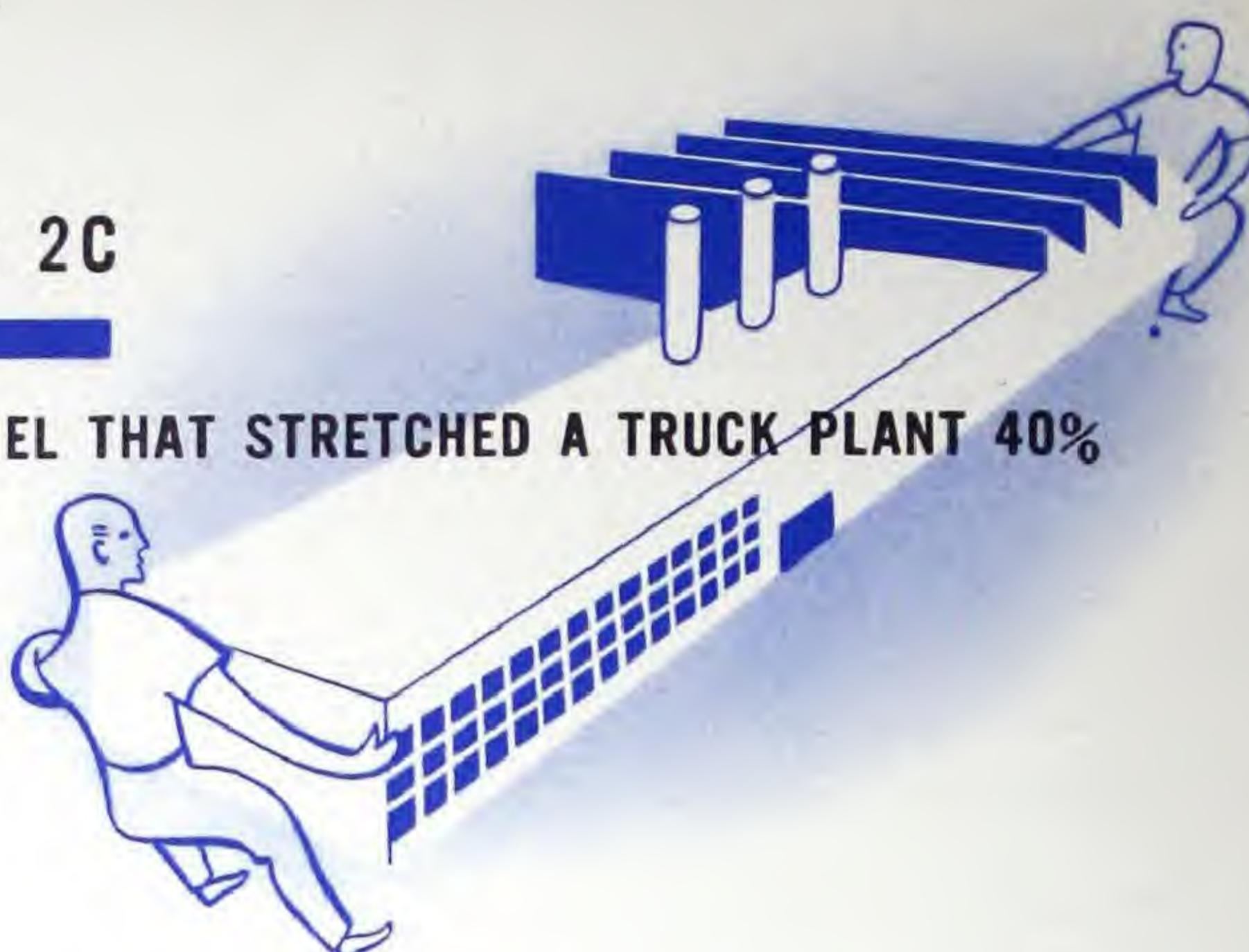
Exceptional resistance to:

Alcohol	Humidity
Acid	Salt Spray
Alkali	Water Immersion
Brine	

Flexibility which permits drawing or forming.

ROXAPRENE TYPE 2C

THE SPEED SYNTHETIC ENAMEL THAT STRETCHED A TRUCK PLANT 40%



It was in the middle 1930's with sales demand suddenly doubled and production bottlenecked at the paint line, when a major producer of motor trucks asked Roxalin engineers to survey his problem.

The first question the production manager of the truck plant asked them was "What do you know about truck finishing?"

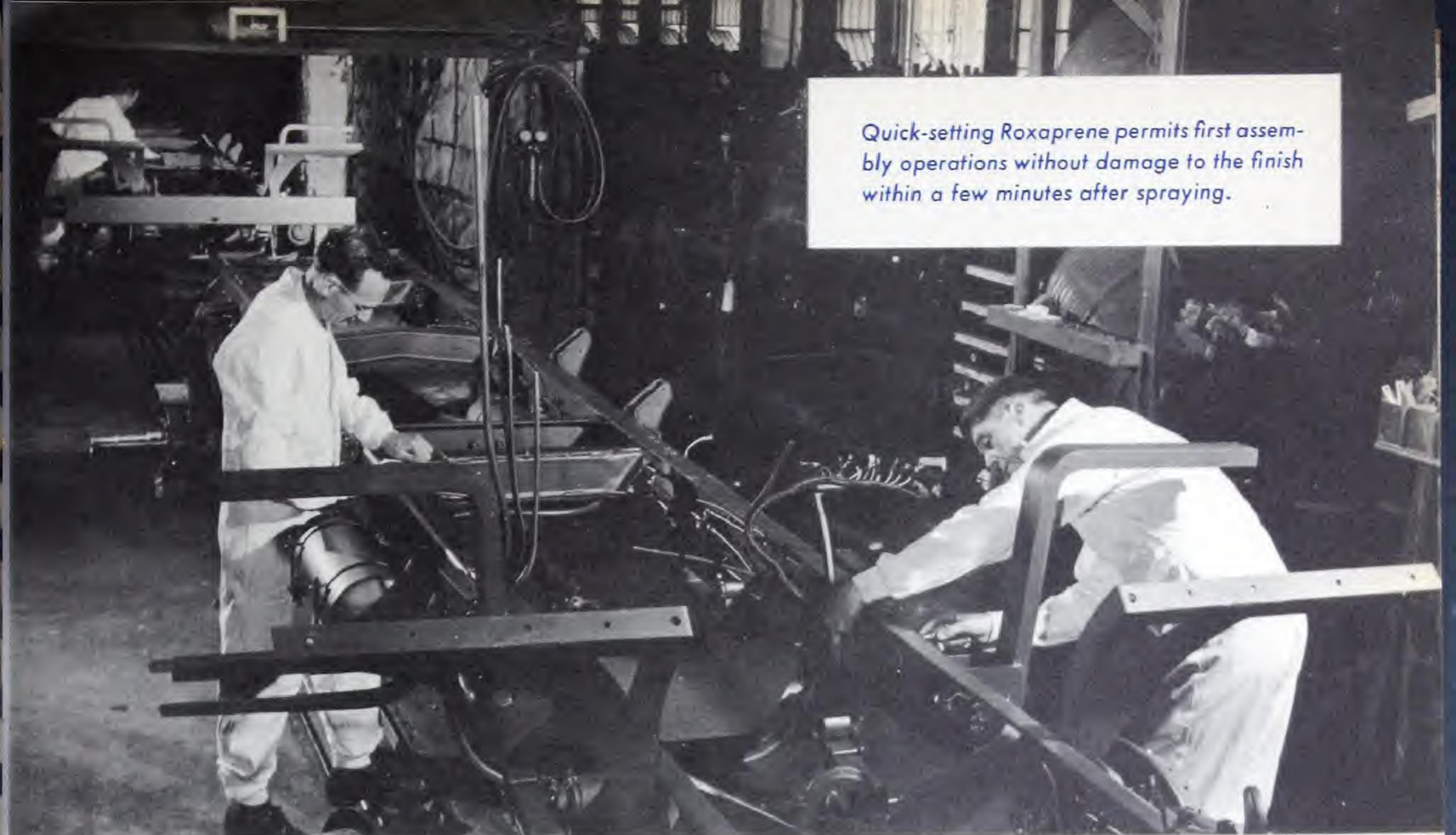
"Not a damn thing" was their candid reply.

"That's swell. You're just the people we're looking for. Every one else we have consulted on this problem claims to know all about it and wants us to do the job their way. There's only one way the job can be done and that's our way. We want to see if you can give us the enamel that will help us do it."

Along the chassis line where only a low temperature (140° F.) could be used, it became necessary to allow no more than a total elapsed time of 8 minutes in order to keep up with other departments. No acceptable chassis enamel could be obtained from regular sources of supply.

Roxalin chemists quickly took advantage of the quick-setting properties of chlorinated rubber, in combination with other plastics of known exterior durability, and developed the speed synthetic known as Roxaprene which dried hard enough in 8 minutes at 140° F. to permit workmen to install batteries, and wiring, and to perform the other operations preliminary to moving the chassis along to the final assembly line.

Durability tests, of course, were run and proved Roxaprene outstanding in resistance to the weather and particularly to the chemical action of the salts sprinkled at road intersections and on steep grades to melt the ice in winter. In areas where the soil was highly alkaline, Roxaprene retained its original brightness and film strength far beyond most conventional automotive finishes.



Quick-setting Roxaprene permits first assembly operations without damage to the finish within a few minutes after spraying.

Roxaprene speed synthetic coatings will air dry, or force dry at low temperatures or cure quickly at elevated temperatures and thus provide an unusual flexibility in manufacturing, as the same finish may be used on a variety of different parts, all entering into the same assembly, but requiring different treatment in production owing to limitations of baking equipment, etc.

In Roxaprene, a blend of plastic forms is used to obtain a combination of quick drying, exterior durability and chemical resistance, coupled with a warm depth of finish.

SPECIFICATIONS:

Trade Name: Roxaprene Speed Synthetic Enamels.
Colors: Black, White, all primary colors and tints.
Appearance: Smooth.
Gloss: Complete range from full gloss to optically flat or non-specular.
Drying: Tack free at room temperature in approximately 10 minutes. Air dries to handle in two to three hours. Hard over night.
Force dry 1 hour at 200° F.
30 minutes at 250° F.
10 to 15 minutes at 300° F.
Application: Dip, spray or roller coat.

DESIRABLE PROPERTIES:

Adhesion: Excellent on clean steel, Alclad, tin, magnesium.
Flexibility: Good; withstands severe impact without chipping, even on unprimed metal. No cracking over 180° bend.
Resistance to Abrasion: Good.
Resistance to Gasoline: Excellent.
Resistance to lubrication oil: Excellent.
Resistance to exterior exposure: Excellent.
Resistance to chalking: Superior to most accepted commercial automotive finishes.
Resistance to salt spray: Excellent.

BAFLEX



FOR PERFECT TRIM . . . a hot box . . . a bath . . . and a rubdown

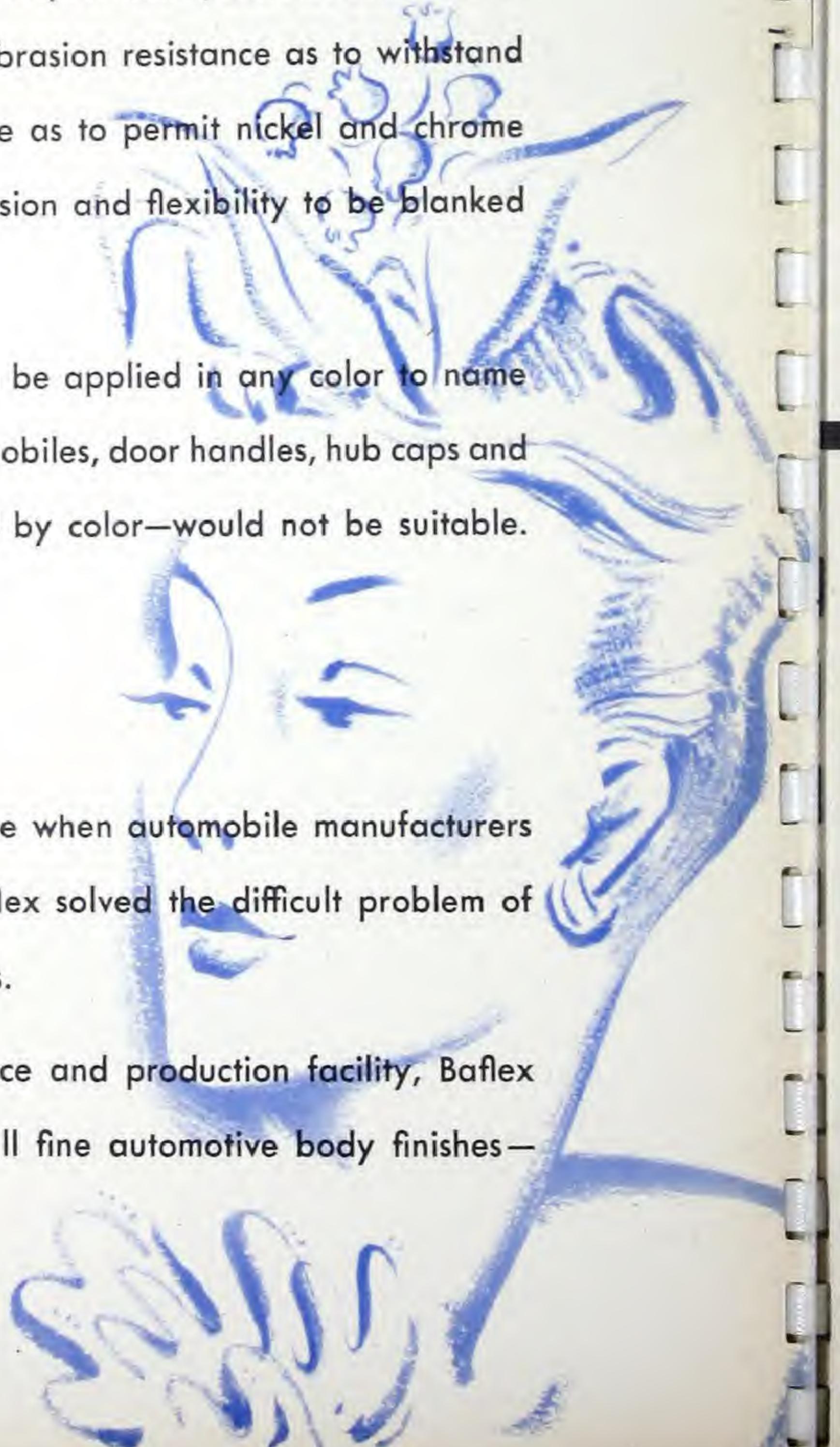
Baflex air dries almost instantly, making multicolor operations possible, and then in a single heat cure, converts to a film with such abrasion resistance as to withstand mechanical polishing, and such chemical resistance as to permit nickel and chrome plating. What's more, it still retains sufficient adhesion and flexibility to be blanked and formed.

Baflex is a new type of curing enamel which can be applied in any color to name plate backgrounds, bright chromium trim on automobiles, door handles, hub caps and other parts where bright metal alone—unrelieved by color—would not be suitable.

Fashion Note

Baflex is a "fashion first." It came into prominence when automobile manufacturers recognized the bright chromium trim vogue. Baflex solved the difficult problem of combining chrome plating with decorative colors.

Beyond possessing unusual plating bath resistance and production facility, Baflex withstands exposure to weather on a par with all fine automotive body finishes—



even when used on clean, unprimed metal! It has the added advantage of setting up rapidly at room temperature, to permit handling in regular lacquer time, which insures fast handling in the finishing room. It is clean, dust-free work.

A NEAT TRICK... and **BAFLEX** can do it!

Baflex makes possible many two-color decorative finishing effects. The base coat of Baflex is covered with masking tape in any desired design, to permit the application of a contracting top coat. After this top coat has been applied, the masking tape —or stencil—is removed and the entire schedule is oven cured together.



SPECIFICATIONS:

Trade name: Baflex.

Colors: Clear, Black, White and all primary colors and tints.

Appearance: Smooth.

Gloss: Any degree of lustre from high gloss to optically flat.

Application: By spray.

Drying properties: Air dries to handle in regular lacquer time.

Heat cures: 1 hour at 275 to 300° F.

DESIRABLE PROPERTIES:

Quick Air Setting.

Excellent Adhesion to unprimed steel, brass, aluminum chrome.

Good toughness and abrasion resistance.

Excellent outdoor durability.

Possesses plastic flow properties for forming.

ROXYN 11C Thermosetting Enamels



WHEN EIGHT MINUS 5 EQUALS 100

Screwy Math?

No, that little sum represents the experience of a company that made cast aluminum housings for pasteurization-control instruments. They had used eight coats of a finishing material to get a job that just couldn't take it. But when they switched to a three-coat schedule of Roxyn 11C Thermosetting enamel (five coats less!)—they increased the life of their finish a *hundredfold*.

THERE'S NOTHING SCREWY ABOUT THOSE FIGURES

For a finish made on conventional lines just won't stand up under conditions in a pasteurization room. The hot, steamy atmosphere and constant cleaning with strong soaps and germicides wear it out in short order.

It is for this type of environment that Roxalin chemists have engineered an enveloping film that minimizes the attack on the underlying metal by moisture and chemicals.

Called Roxyn 11C Thermosetting enamel, it possesses not only resistance to moisture but fights off alkali, alcohol and other chemicals to maintain a gleaming white porcelain-like appearance under service conditions which quickly overwhelm conventional finishes.



ROXYN 11C . . . PASSES FORCED SERVICE TESTS

Aluminum castings were finished with one coat of Primer-Surfacer followed by one coat of 11C White. Along with two competitive materials they were placed in a salt spray cabinet. At the end of the test cycle competitive materials had broken down. The Roxyn 11C surface was perfect. Then a complete unit given a three coat Roxyn finish was tested in the field. After seven months in a humid and salty atmosphere plus washing in cold water twice a day it was still perfect. Competitive materials broke down in a week.

{ Just a few pieces of equipment for which
Roxyn 11C is the ideal surface coating

SPECIFICATIONS:

Trade name: Roxyn 11C Thermosetting Enamels.

Appearance: Glassy smooth.

Colors: Permanent pure white and all primary colors and tints.

Gloss: All degrees of lustre are available, from brilliant gloss to dead flat.

Application: By spray.

Drying properties: Rapidly sets out of dust. Requires heat curing at temperatures ranging from 250 to 400° F. for period ranging from 1 hour to 1 minute depending on the size and bulk of the object to be finished.

DESIRABLE PROPERTIES:

Excellent color purity and color retention in white. Good adhesion on unprimed steel, brass and aluminum. Extreme hardness and mar-resistance, high resistance to humidity and moisture.

Good resistance to alcohol and solvents.

Non thermoplastic, non printing.

May be cured by heat shock; i.e., brief exposure to 400-450° F. completely converts the plastic phase of Roxyn 11C to the solid form.

Lower temperatures (down to 250° F.) are also permissible.

PALADIN PRIMER and ENAMEL



bit player becomes *Star*

In 1941 manufacturers of brass hardware asked Roxalin for a finish that would minimize crystal spotting on their product.

Roxalin's answer was a clear coating of new plastic forms that did the job for which it was designed. At that time it was considered a comparatively minor addition to Roxalin's long list of plastic coatings.

But in spite of this modest beginning a new star in the field of product finishing had been born!

For exhaustive tests proved that this new finish—now called Paladin—was the long-sought cure for one of industry's biggest headaches—the failure of finishes to adhere to untreated zinc and cadmium plate without flaking or peeling under impact or abrasion.



PALADIN—the versatile finish

Paladin is a "good mixer." It is not only a tough, adhesive, corrosion-resistant one-coat finish in itself, but it gets along equally well as a primer under all types of organic surface coatings.

Paladin's most important use as a primer is due to its remarkable adhesion to clean zinc, cadmium plate, zinc die castings and brass, but it has equally outstanding affinity for other hard-to-finish metals including copper, polished chrome, and stainless steel.

This means that if a product must be built of several different metals, some normally harder to finish than others, one single prime coat, to adhere equally well to all, is available in Paladin.



Cadmium plated steel, half primed with Paladin, half with commercial primer, followed by wrinkle enamel top coat. Note how Paladin-anchored system clings to this hard-to-finish surface whether scratched or sharply bent.

SPECIFICATIONS

Trade Name: Paladin primers and enamels.
Colors: Glossy and Satin finish black, and clear (full range of colors after the war).
Appearance: Smooth.
Gloss: In black, high gloss or satin sheen (rubber finish).
Drying: 12 to 15 minutes for handling at 70° F.
Force drying: 20 minutes at 250° F. or 10 minutes at 300 to 325° F.
(Paladin is adapted to infra-red baking).
Application: Dip, spray or roller coat.

DESIRABLE PROPERTIES

Adhesion: Perfect and permanent on clean steel, stainless steel, black plate, tin, aluminum castings, unanodized aluminum, anodized aluminum, copper, brass, cadmium, zinc, glass.
Flexibility: Excellent; permits fabrication of pre-finished parts.
Resistance to abrasion: Good.
Resistance to solvents: Good.
Moisture vapor transmission: Low.
Salt spray resistance: Excellent.
Humidity resistance: Good.

CLOSURE COATINGS

easing the home canning bottleneck



Mrs. America needed glass jars and lots of them to preserve the produce from her victory garden. Now glass was a relatively non-critical material—but metal caps were a different story.

The caps are made in two parts—a lid and a screw band or anchoring ring to hold the lid in place during the cooking process. As the jars cool, the resulting vacuum causes the lid to set itself firmly and to form a perfect seal. Then the screw band may be removed.

If these screw bands could be used again and again much valuable metal could be saved. More home canned produce could go on American shelves.

The job was a natural for Roxalin closure coatings. Anchor rings coated with Paladin Gold Lacquer could go through the canning process and come up smiling—ready to go back and do it all over again.

Roxalin closure coatings flow out smooth without ridges or "eyeholing" when applied by roller, and possess high resistance to fats, vegetable oils, alcohol and alkali, dry heat or steam sterilization. In addition, they conform to accepted curing cycles of 12 to 18 minutes at 260° F. to 375° F.

Roxalin closure coatings, applied to flat sheets, withstand blanking and forming into caps, later rolled, threaded and knurled.





Another important advantage is their conformance to manufacturing procedure. In this field it is customary to apply the protective coating to large flat sheets of metal from which the finished caps are stamped or drawn. Only a finish with inherent adhesion and retained flexibility could stand up under such treatment.

Yet the plastic flow of Roxalin closure coatings, in the cured state, insure perfect fabrication properties and an unweakened finish for service life.

SPECIFICATIONS

Trade Name: Roxalin Roller Coatings.
Color: Transparent, gold, white, black and colors.
Appearance: Smooth.
Gloss: High.
Application: Mechanical roller.
Drying: Thermoplastic-thermosetting.
Curing range: 12 to 18 minutes at 290°F. to 350°F.

DESIRABLE PROPERTIES

Inherent adhesion.
Retained flexibility.
Resistance to marring.
Resistance to moisture.
Resistance to steam.
Resistance to acids.
Resistance to alkali.
Resistance to heat.

CRUSADER ENAMELS



the rivets that kept their heads

A Flying Boat is as safe as its rivets.

Because these globe-circling craft spend almost as much time in the water as in the air, corrosion is an enemy to be reckoned with.

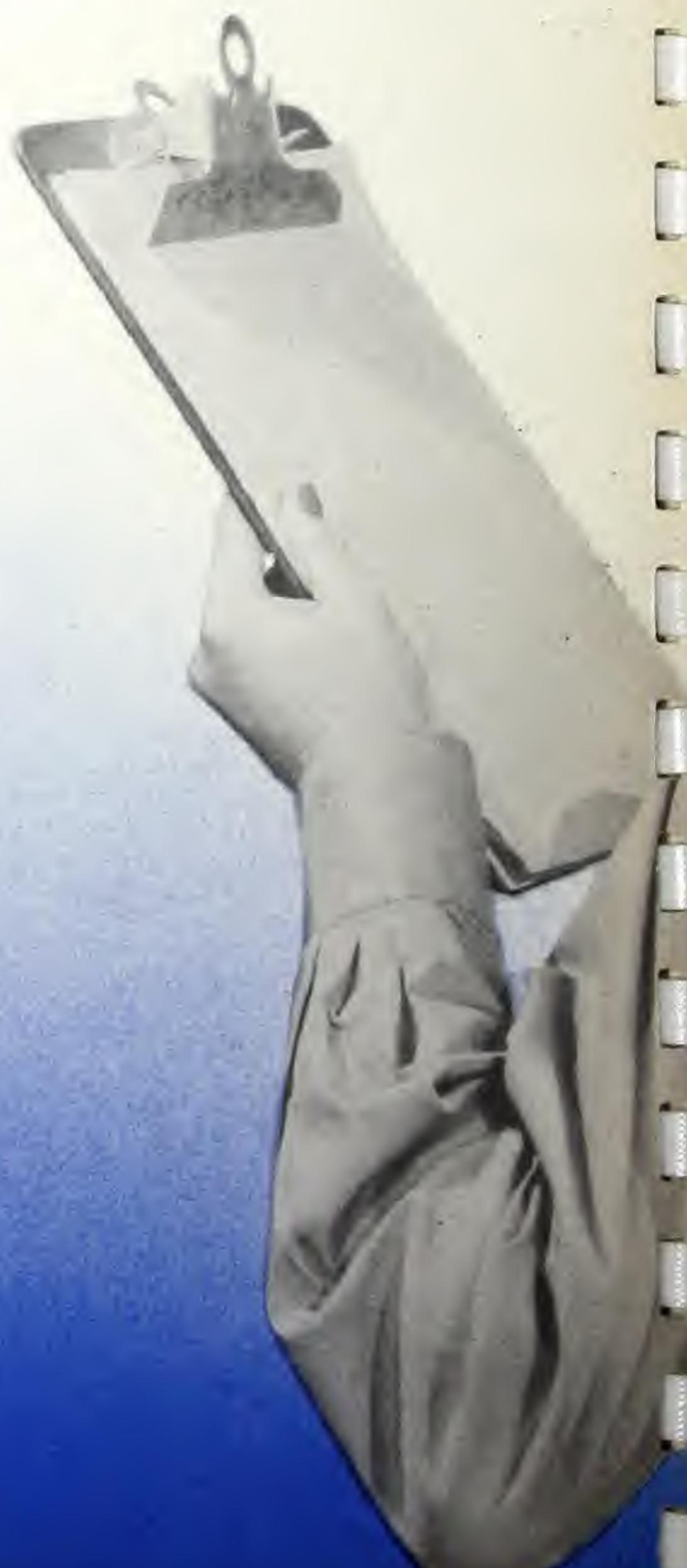
And the most troublesome point of corrosion has always been these small but vital parts on which depends the strength of the hull and the safety of the crew and passengers.

But that was before Crusader Enamels were developed to give anodized aluminum a tough, abrasion-resistant, corrosion-resistant skin. Since the pioneer trans-oceanic air transport company adopted this plastic base enamel, 90% of its rivet replacements have been eliminated!

Moreover Crusader adheres stubbornly through rough landings at speeds where the water is almost as hard as concrete and frequently contains the added hazards of floating debris.

The leading edges of wings as well as the hull gets protection from Crusader. For after curing, it is practically unaffected by aromatic fuel, brake fluids, de-icing fluids and lubricating oil.

Plywood construction, too, benefits from a coating of plastic base Crusader. Its low water permeability protects the wood against weight and dimensional changes resulting from exposure to rain, snow and high humidity.



CRUSADER turns Shop Time into FLYING TIME

Previous schedules for finishing flying boats had been a coat of specially formulated corrosion inhibiting primer followed by two coats of synthetic enamel. This schedule was shortened to one coat of Crusader, applied directly on anodized aluminum.

Not only was time and valuable weight saved in the original application, but this extremely smooth, highly pigmented finish stands up under punishing service and stretches out the intervals between finish overhauls. Where the flying boats used to require touching up of damaged spots after every Trans-Atlantic crossing, Crusader finished craft have been in continuous service for *more than a year* without requiring such repairs.

SPECIFICATIONS

Trade Name: Roxalin Crusader Enamel.

Colors: Black, white, ocean and sky colors.

Appearance: Smooth, minimum air friction factor.

Gloss: Flat, non specular.

Drying: Tack free to touch in 20 to 30 minutes. May be force dried if desired.

Application: Spray.



DESIRABLE PROPERTIES

Fast air drying.

High hiding, high coverage (600 to 800 sq. ft. per gallon based on dry film thickness of approximately 1.0 to 1.5 mils).

Excellent adhesion to anodized aluminum, stainless steel, plywood.

Abrasion resistance.

Low water permeability (periodic water immersion and drying cycles prove resiliency of Crusader, with film strength unimpaired).

Long outdoor durability—non checking, minimum chalking.

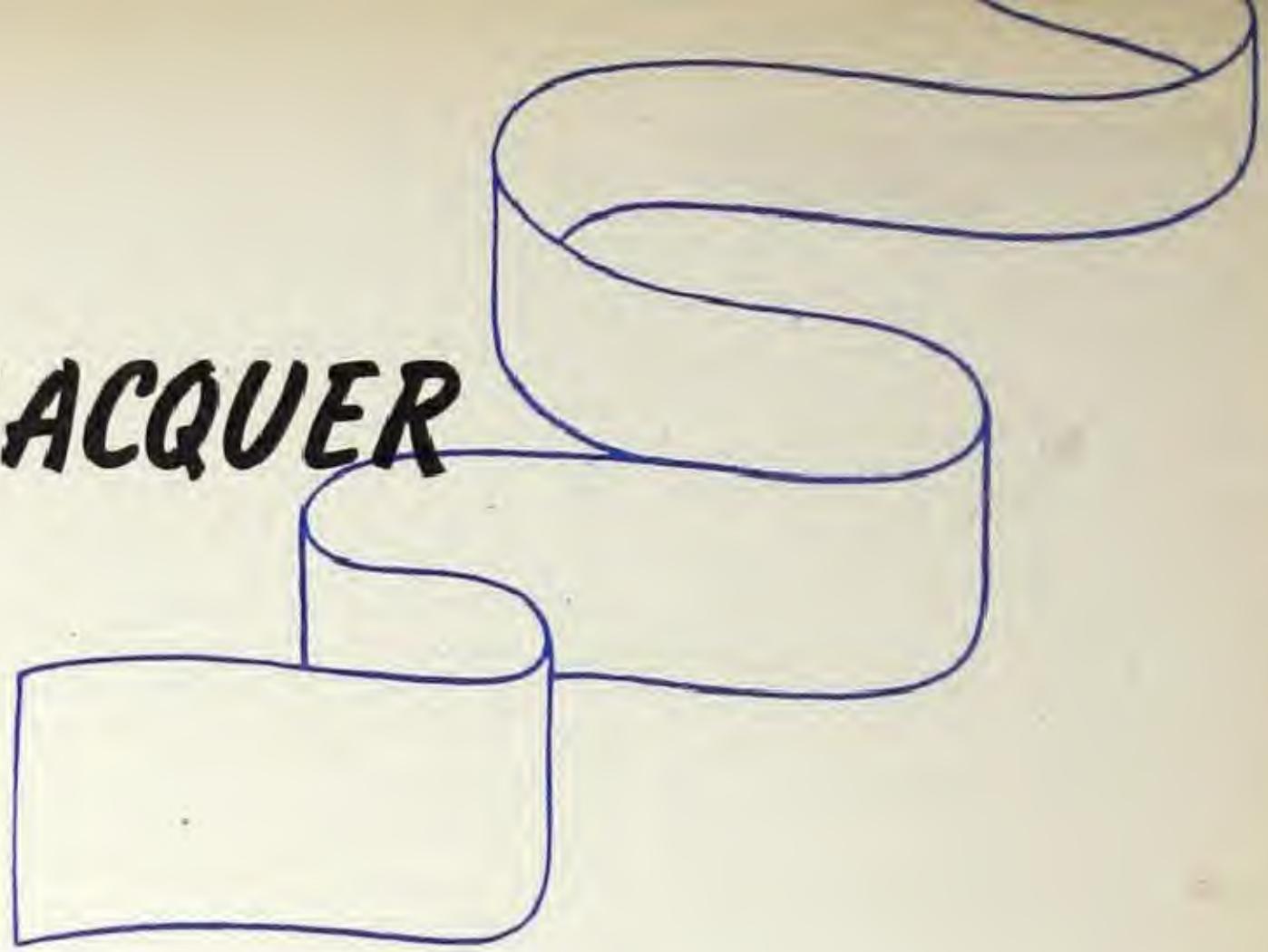
High resistance to aromatic fuels, brake fluids, de-icing fluids, lubricating oil.

Flame resistance.



TARNISH-PROOF SILVER LACQUER

silver lacquered by the YARD!



Silver will tarnish. That's a fact of household life.

You can imagine the trouble that manufacturers of matte-silver plated instrument dials and clock faces used to have in getting their products into the hands of their customers tarnish-free.

Applying experience in producing permanently flexible films, Roxalin laboratories gave them a colorless transparent plastic solution which withstood the discoloring influences of sulfur compounds present in the air and in many types of paper, leather, and rubber.

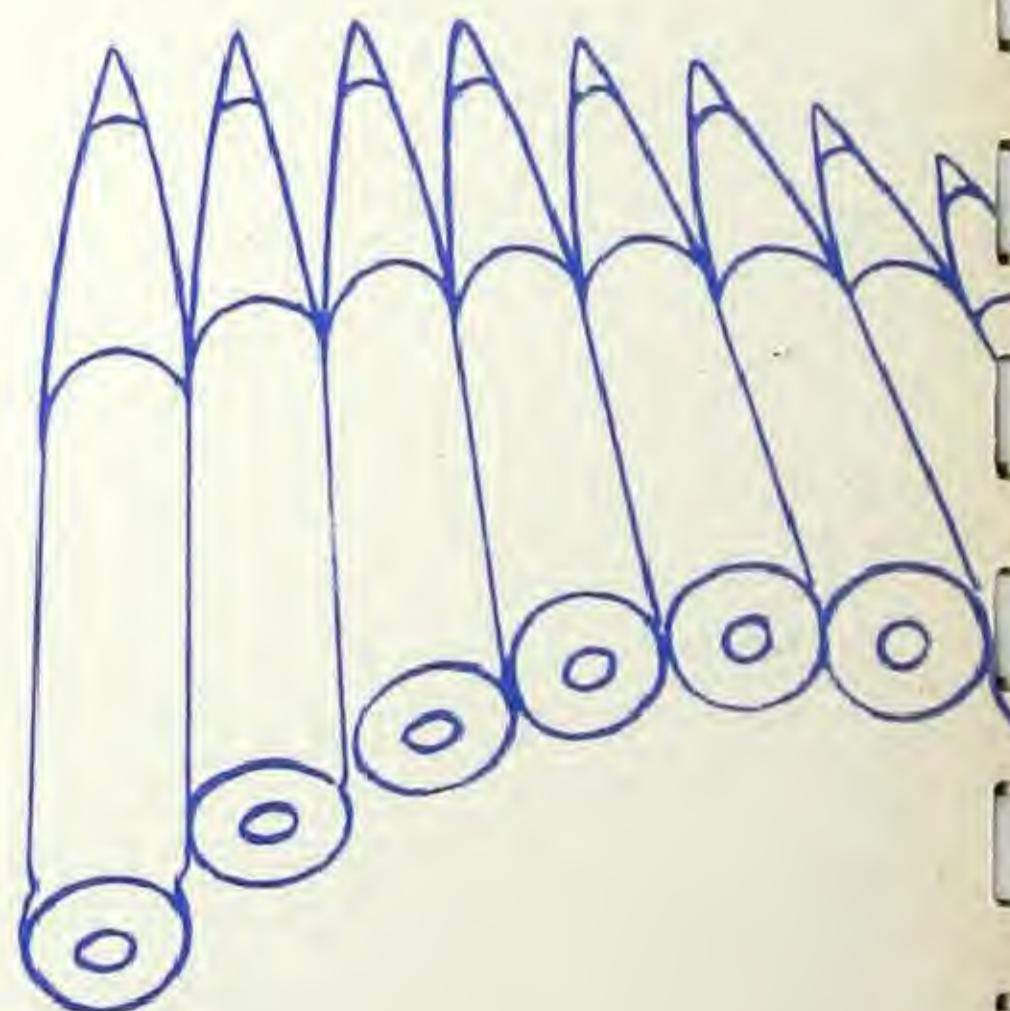
And, in addition, flexible Roxalin tarnish-proof lacquer could be applied to large sheets before the manufacturing process began.

Later these sheets could be blanked, embossed and formed into the desired shapes without affecting the protective properties of the film.

ROXYN 10.B . . . when STEEL went to bat for BRASS

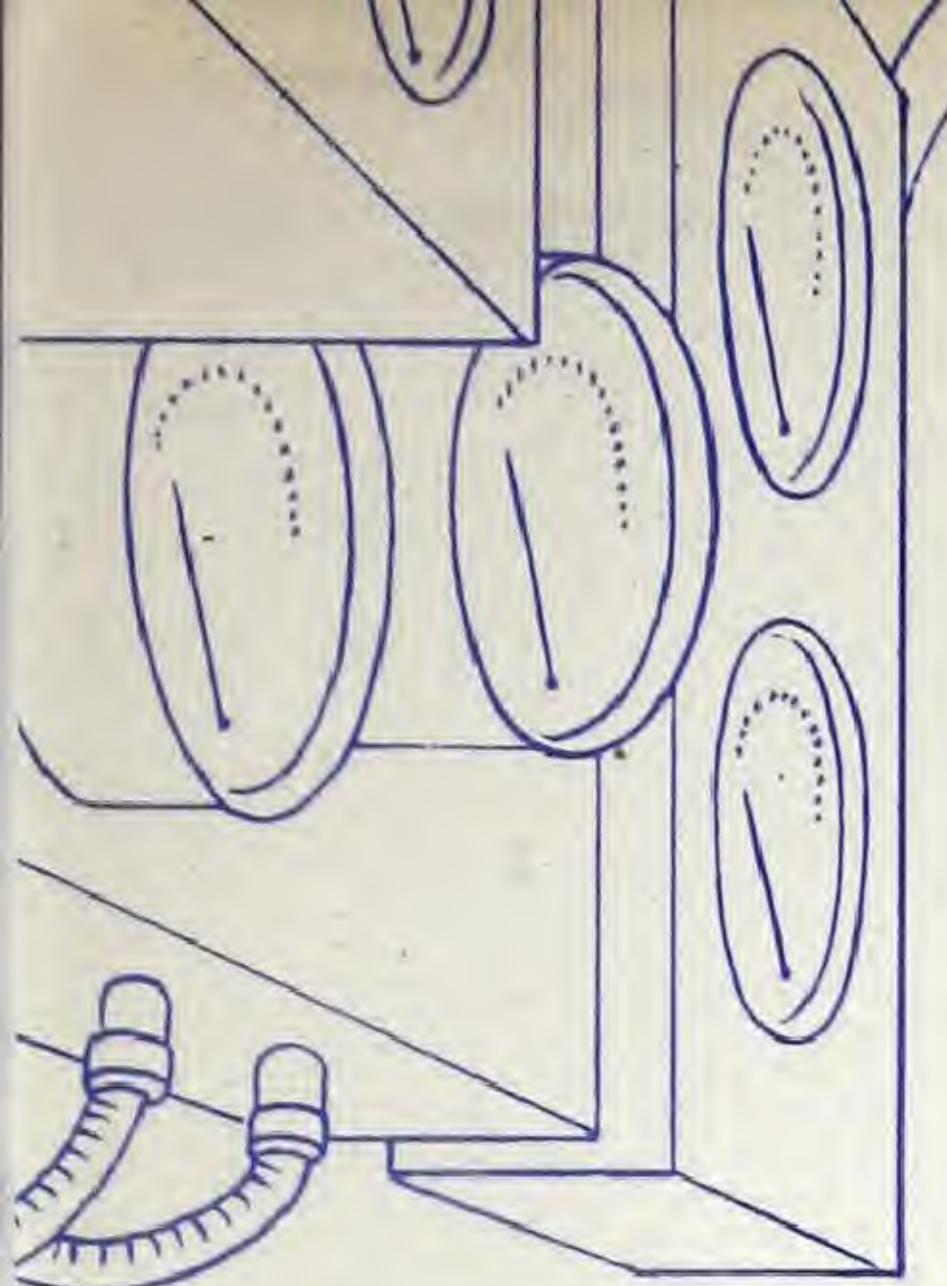
When steel had to pinch hit for critical brass in the greatly expanded production of cartridge cases, the success of the entire program hinged on the development of a protective coating that would be

1. chemical resistant, to prevent any reaction between steel and powder.
2. abrasion resistant, to withstand the grinding action of powder pellets.
3. corrosion resistant, to protect against rusting in salt atmospheres and in all climates.
4. wear resistant, to be unaffected by rough handling in transport.
5. hard and non thermoplastic to stand firing temperatures up to 600° F. without sticking in the breech.
6. yet flexible enough to prevent chipping under sharp impact or knurling.



Roxalin technical men succeeded in adapting thermosetting plastics for spray or dip application and produced a corrosion resistant coating, Roxyn 10B, which met these rigid requirements.

With this wartime engineered coating of plastic, industry has a new safeguard against corrosion, effective under conditions where organic finishes previously have been of little value.



FUME-PROOF DIAL WHITE ENAMEL

where **WHITE** means **RIGHT**

Discolored dials mean distorted readings.

When molded housings were adopted for instruments previous dial finishes had to be discarded; phenolic fumes from the new housings discolored these conventional enamels.

That's why Roxalin Dial White was created. This plastic-base enamel is chemically inert to these fumes. In addition, it is non-yellowing and adheres equally well to steel, aluminum or brass.

Now, wherever split-second decisions can't wait for a second look, this new development is doing a job—and doing it well.



RINCONTROL . . . Smart, Stylish, Distinctive

Such well known advantages of wrinkle enamels as their ability to

1. Provide a one coat finish.
2. Conceal spot welds and metal defects.
3. Stand up under hard service.
4. Contribute a pleasing appearance.

have in the past been frequently nullified by production difficulties arising from non-uniformity. Skinning in the container, loss of wrinkling properties on aging, fish eyes, fatty edges—these are some of the wrinkle finish faults that resulted in costly rejects, loss of man hours and materials.

To produce Rincontrol, the new, improved textured enamel, Roxalin chemists simply applied the principles of controlling the behavior of organic coatings which they developed in their 20 years of engineering special-purpose finishes.

As a result, Rincontrol has been utilized by world famous manufacturers to dress up and protect their business machines, office equipment, air conditioning units and automotive accessories, and by scores of government contractors to provide a quick, economical finish that can stand the gaff on all kinds of communications equipment.

As a matter of fact, Rincontrol is being used in the air conditioning industry *in preference to other finishes* because of its high corrosion resistance. One coat of Rincontrol over Paladin-primed Cadmium plate has successfully withstood 1500 hours of 20% salt spray at 95° F.!

EMYCEL for aircraft fabric

bringing fabric finishing costs *down* *to earth*



In 1938 the cost of finishing airplane fabric was sky-high.

But a manufacturer of light airplanes knew where to go to bring costs down to earth. He came to Roxalin, whose Blue Knight Enamels had been giving him impressive service on his aluminum parts.

Here was a job right up our alley. The high cost of fabric finishing was mostly a labor problem. If the seven or eight coats of dope necessary to get satisfactory hiding and smoothness could be reduced to a labor-saving four, a hefty slice could be cut from the cost of each plane.

That's how Emycel was born. For the first time, the airplane industry had a plastic base fabric finish which combined the tautening properties of conventional dopes with freedom from blushing, retained film strength on exposure, greater impact resistance, lowered flammability and resistance to fungus or mildew attack.

The application of Emycel at moderately elevated temperatures deposits higher solids at spraying consistency. Roxalin chemists not only reduced the number of coats required to four, but also used new and different film forming plastics to impart greater strength to the film. In service, this results in freedom from ring-worming or cracking when the fabric is struck by flying objects. The burning rate was lowered to a point where fire could be snuffed out by diving the plane. Fungus and mildew resistance prevented rotting of the fabric from below, which, until recently, was not given due recognition as a cause of failure.



IT'S ALWAYS FAIR WEATHER...

One of the greatest operating advantages in Emycel, beyond the savings in labor and time it has made possible, is the fact that it may be applied in any kind of weather, even on muggy, humid days when regular airplane dopes blush so badly as to shut down the dope room. Operators of air transport planes, whose control surfaces are fabric covered, have found in Emycel a means of cutting their overhaul time to a minimum and eliminating the risk of planes being laid up over time, on account of bad weather which would prevent doping with conventional materials.

Roxalin's utilization of new plastic forms to produce Emycel for the aircraft industry, where doping practice had been fairly well standardized since World War I, is another example of a successful, fresh approach to an old problem.

SPECIFICATIONS:

Trade Name: Emycel.

Colors: White, black and all colors.

Gloss: Non specular or high gloss.

Drying properties: Dries to handle in about 15 minutes, to recoat in 30 to 45 minutes.

Application: Hot spray (commercial equipment for this process is available).

DESIRABLE PROPERTIES:

Film strength.

Impact resistance.

Tautness.

Low flammability.

Non blushing.

Prevents fabric rotting by fungus organisms.

FABROX TEXTILE PRINTING COLORS

fabrics printed like your daily newspaper

Flexible lacquer type colors have been developed in the Roxalin laboratories which can be applied by engraved printing rollers. And in the course of a few feet through circulated warm air to remove the solvents, the printed goods can easily be rerolled. In many ways, this use of colors dispersed in plastic solutions is a new art. It has greatly simplified the color decoration of fabrics.

For example, the dye printing of textiles is a complicated process entailing the removal of sizing from the fabric by washing; then the fabric is dried and only after that can the design be printed. This design is then developed by setting it with steam and chemicals, after which the chemicals must be washed out, the fabric finished smooth and again put through a drying cycle. Obviously only long runs can be made economically in this involved process. And should some mistake occur—such as happens when the design is poorly registered—a lot of waste is involved.

Fabrox enables you to eliminate several difficult steps—saving you time and money. There are other types of Roxalin flexible lacquer colors which can be adapted to stencil application. And in all types you have a wide selection of colors and patterns. Also, adhesive type Fabrox coatings are used as a base for flock, when an appliqué effect is desired.

Fabrox delustre is utilized in producing the handsome damask effect widely found in materials used for window curtains and drapes.

Fabrox textile printing colors are specifically engineered for the particular fabric on which they are to be used and they have been developed to withstand dry cleaning, laundering and ironing.

SPECIFICATIONS:

Trade Name: Fabrox Textile Printing Colors.

Application: Printing roller or stencil.

Colors: All colors, white, black and delustre.

(Because of the special nature of Fabrox compositions, detailed information on materials for specific purposes will gladly be furnished in correspondence).

WHITE BUFFING ENAMEL

for the best seat in the house

In 1939, to meet certain market conditions, an internationally prominent manufacturer of high grade toilet seats, desired to add to their line a white seat finished with durable enamel. They needed a finish that would withstand climatic and atmospheric conditions in both the Northern and Southern hemispheres, and above all preserve the splendid reputation they had built up in over forty years.

All the leading manufacturers of lacquers and enamels were asked to submit samples of their products for extensive testing. The material which best stood up under a year of these exhaustive tests was to be accepted as the standard finish for their seats.

Upon analysis of their requirements the Roxalin technical department suggested that the logical solution to this problem was a plastic base white schedule which could be deposited by the spray method to obtain the desired appearance and lasting protective values. This program was not only completed successfully with the elimination of many of the field problems previously encountered with sprayed seats, but it was also done at a lower cost than ever before.

SPECIFICATIONS:

Trade Name: Roxalin Buffing White Enamel.

Color: Pure White.

Appearance: Smooth.

Gloss: Medium—sparkling full gloss after buffing.

Drying: Air dries to handle in about 15 minutes, to recoat in 30 minutes to 1 hour.

Application: Spray (special dipping types are available).

DESIRABLE PROPERTIES:

Color permanence, non-yellowing.

Full gloss after buffing.

High moisture resistance.

Excellent abrasion resistance.

Good adhesion, freedom from chipping.



FLEXIBLE OUTDOOR WOOD FINISHES

5

stories with a dramatic finish

THE LACQUER THAT HAD A "SHOTGUN" WEDDING

It turned out to be a very fortunate marriage! One of the oldest manufacturers of sporting rifles wanted to finish his gun stocks, in half the normal time, by the use of lacquer—and still retain the outdoor durability and weather resistance of slower drying varnishes. He got together with Roxalin. An outdoor wood lacquer was developed to meet his requirements.

This Roxalin plastic base wood lacquer not only cut his production time in half—but the gun stock and the lacquer got along splendidly together. The stocks gained a new richness of finish which enhanced the beauty of the wood grain. What's more, the finish was mar-resistant, moisture-resistant—tough enough to withstand all the beating that a sporting rifle gets in its lifetime.



THE PROPELLER FINISH THAT STEPPED UP R.P.M.

A Roxalin outdoor wood lacquer "air dries" in one-tenth of the time it takes other finishes conventionally used on wood and airplane propellers. More than that, Roxalin outdoor wood lacquer provides a harder film than the traditional varnish coating. This means greater resistance to abrasion from dust, hail, rain and snow. Last but not least, Roxalin's slip stream propeller lacquer provides such a smooth horn-like surface that it lowers friction over the blade in operation—increases the efficiency of the propeller to a measurable degree.

SURVEYORS INSTRUMENTS

Scaling mountains—dragged through deserts and river valleys the globe over—surveyors' instruments lead a rugged outdoor life. The Roxalin outdoor wood lacquer used on wooden frames and tripods has been chosen for its sturdy, enduring, protective value. Yet it has an outward appearance that would glorify a grand piano.





GASOLINE-PROOF LACQUER

fighters go further because plywood was made gasoline-tight

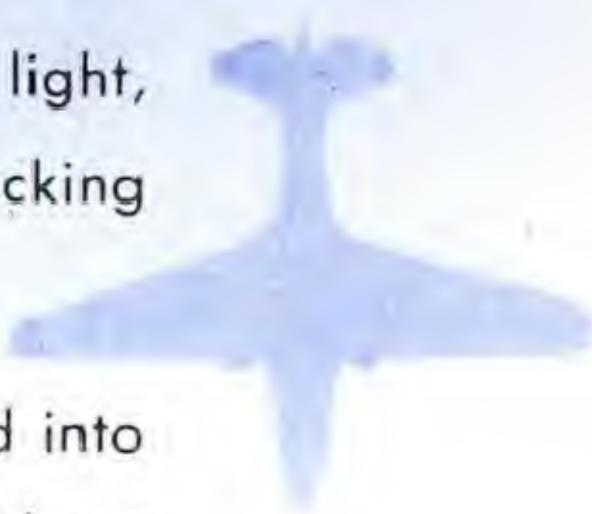
Range is spelled G-A-S-O-L-I-N-E in the Air Force.

Our planes needed "throw-away" tanks to carry that extra mileage. Plywood was the light, inexpensive choice for the task—if gasoline could be prevented from seeping and attacking the bonding material.

To meet this wartime need, Roxalin produced a plastic base lacquer which was poured into the tank, slushed around, drained and then allowed to cure at normal temperature without any special baking operation.

The lining thus produced fitted requirements to a T. For not only is Roxalin Gasoline-Proof Lacquer impervious to a mixture of 100 Octane Gasoline and aromatic solvents, but it is highly resistant to moisture and humidity.

Conventional lacquers or varnishes would be of doubtful value for critical work of this type but it was a problem for which the Roxalin technical department had a ready answer.



PIPE LACQUER . . . the lacquer that breathes

A pipe finish must breathe.

Heat from the burning tobacco forces moisture from the wood to the surface. There ordinary pipe lacquers hold it prisoner; blisters are the result.

But Roxalin has engineered a permeable film which allows the moisture to escape into the air—a feature which saves repeated applications of shellac and many minutes on the buffing wheel.

In addition, Roxalin Pipe Lacquer resists perspiration—a frequent cause of finish failure. It is odorless and tasteless and more often than not looks like new even after the bit has been worn through.

ELECTRICAL CABLE BRAID SATURANTS

a liquid plastic that resists **FLAME** and **MOISTURE**

Much electrical cable is wrapped with tinder.

Layers of synthetic or cotton thread braided around the insulating compound are inflammable, and a Roxalin cable saturant, based on plastic, is used to put a damper on incipient fires.

A cable so treated will not burn when held directly over a flame in a vertical position — a position in which most constructions will support combustion.

Another function of this saturant is to prevent wicking of moisture through any break in the plastic surfacing film that follows, which moisture would affect the electrical properties of the wire.

This saturant was developed by Roxalin's electrical coatings laboratories to answer the need for a safe substitute for toxic chlorinated compounds previously used. Neither the solid plastics nor the solvents in which they are suspended contain any chlorinated hydrocarbons. In addition, the solvent combination is free from methyl alcohol, benzol or chlorinated solvents, and thus does not attack the insulating compound around the conductor.

The solid portion of the new coating is permanently flexible and therefore detracts nothing from the mechanical features of the wire after aging. Another important advantage is its rapidity of cure in a stream of air at temperatures ranging from 150 to 250° F.

Manufacturers of electrical wire and cable recognize an engineering job well done in this Roxalin development. A non-toxic impregnating compound which has excellent moisture and flame-proofing qualities together with flexibility and adaptability to various types of protective overlays is a real contribution to the industry.

SPECIFICATIONS

Trade Name: Roxalin Flame Retardant Moisture Resistant Saturant.

Colors: Gray, white or black.

Appearance: Smooth, dull.

Application: Immersion followed by die removal of excess, in continuous lengths.

Drying: 4 to 10 minutes at 150 to 250° F., the length of time decreasing as the temperature increases.

DESIRABLE PROPERTIES

Non-toxic.

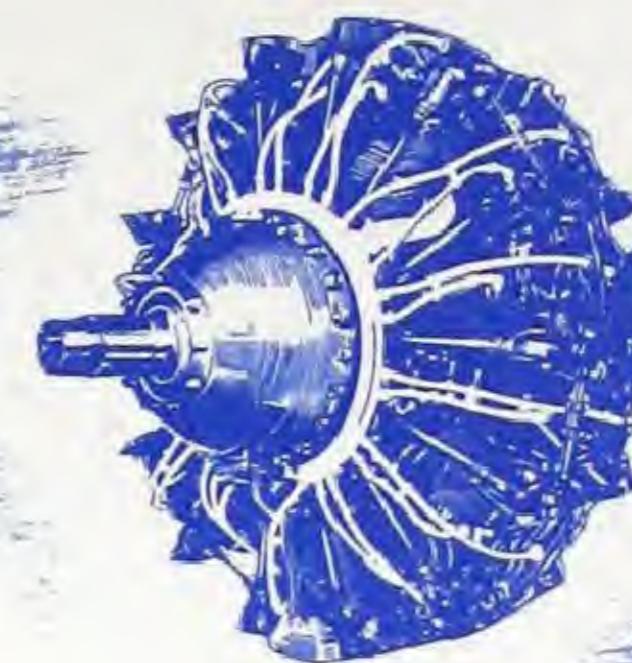
Moisture resistant.

Flame retardant.

Permanently flexible.

No attack of insulation.

ELECTRICAL CABLE COATINGS

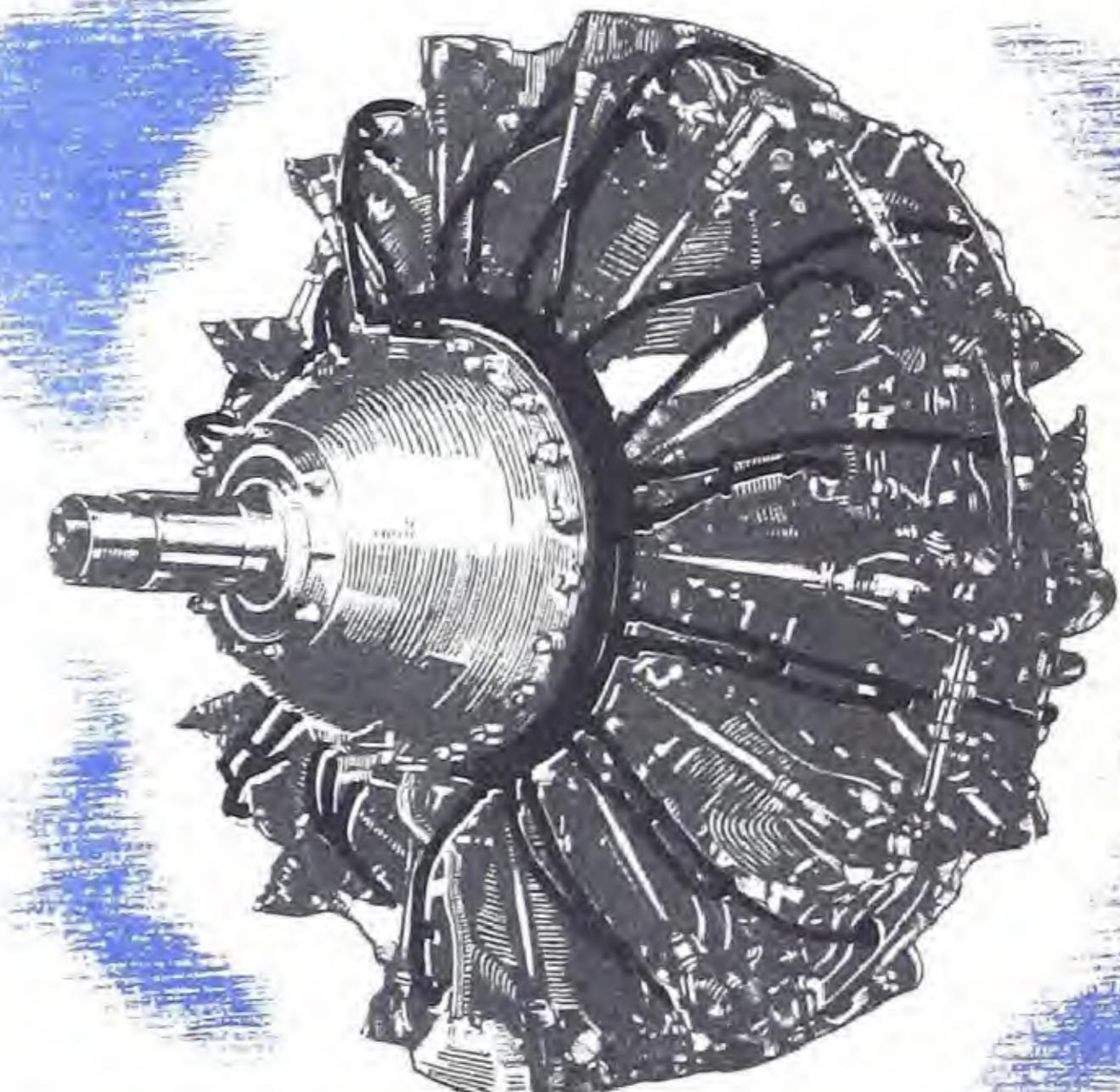


protection for an engine's *Nervous System*

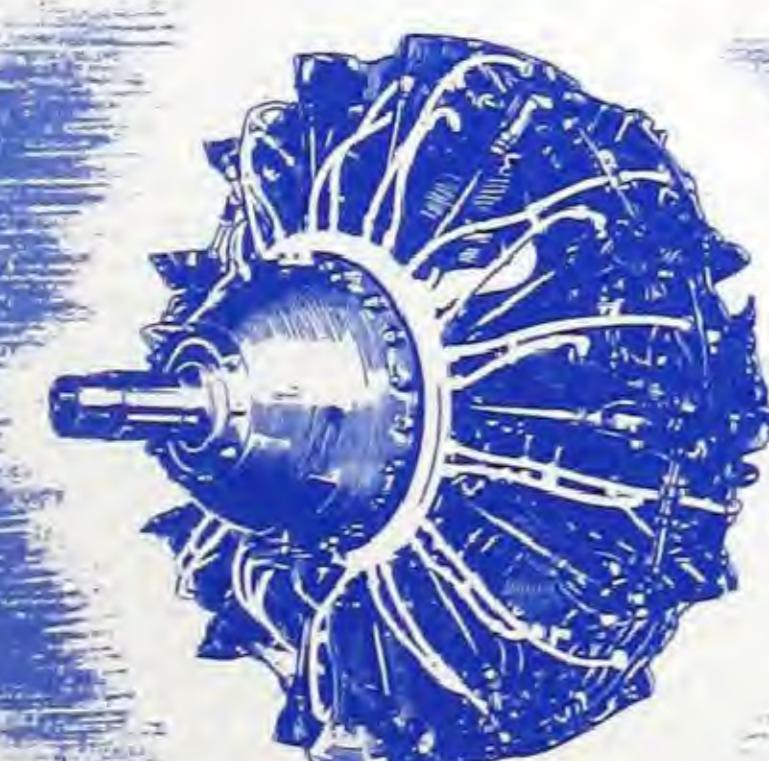
Electrical wiring is the nervous system of all motor-driven transport. Through it passes the spark of life which keeps the motors pulsing and operates the lighting, communication and auxiliary power equipment.

HERE, TOO, ROXALIN IS ON THE JOB

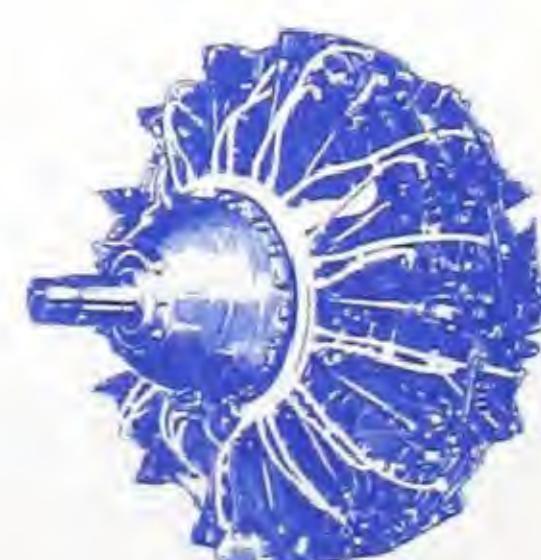
A whole line of Roxalin created finishes furnishes vital protection for the masses of wire in their oil and gasoline-soaked environment. Special surface coatings developed for this exacting requirement utilize highly specialized plastics to obtain:



- Hot oil resistance.
- Resistance to aromatic gasoline.
- Retained flexibility at temperatures down to -60° F.
- Resistance to motor temperatures up to 350° F.
- Sufficient hardness to withstand pulling through ignition harness shields.
- Resistance to corona.
- Resistance to moisture.



Roxalin electrical cable coatings are produced in many individual formulations to meet the specific production and technical requirements of the leading cable manufacturers.



ROXYN 11CP coatings for plastic

GILDING THE PLASTICS LILY

A plastic surface for plastics!

At first thought that seems like carrying coals to Newcastle . . . but there's hard common sense behind such procedure.

Take a table model radio cabinet inexpensively molded from dark plastic . . . add a gleaming coat of light colored plastic-base enamel and presto—there is all the beauty—and sales appeal—of the more expensive material. Yet the price has been kept within reach of added millions of radio buyers.

Many articles for mass distribution can be economically produced in molded plastic form. In most cases, to obtain light tints or brilliant colors in the plastic used for construction would defeat the economics of the project. In addition, many types of functionally useful plastics cannot be produced in any but the darker colors. But Roxyn 11CP enamels, applied quickly and smoothly and heat cured in the space of minutes, provide the necessary eye appeal in combination with a hard, scuff-resistant finish, at a nominal cost.

By applying a plastic surface of Roxyn 11CP on scored composition board, long lasting, colorful wall tile is being made on a mass production basis, and within the reach of all pocketbooks.

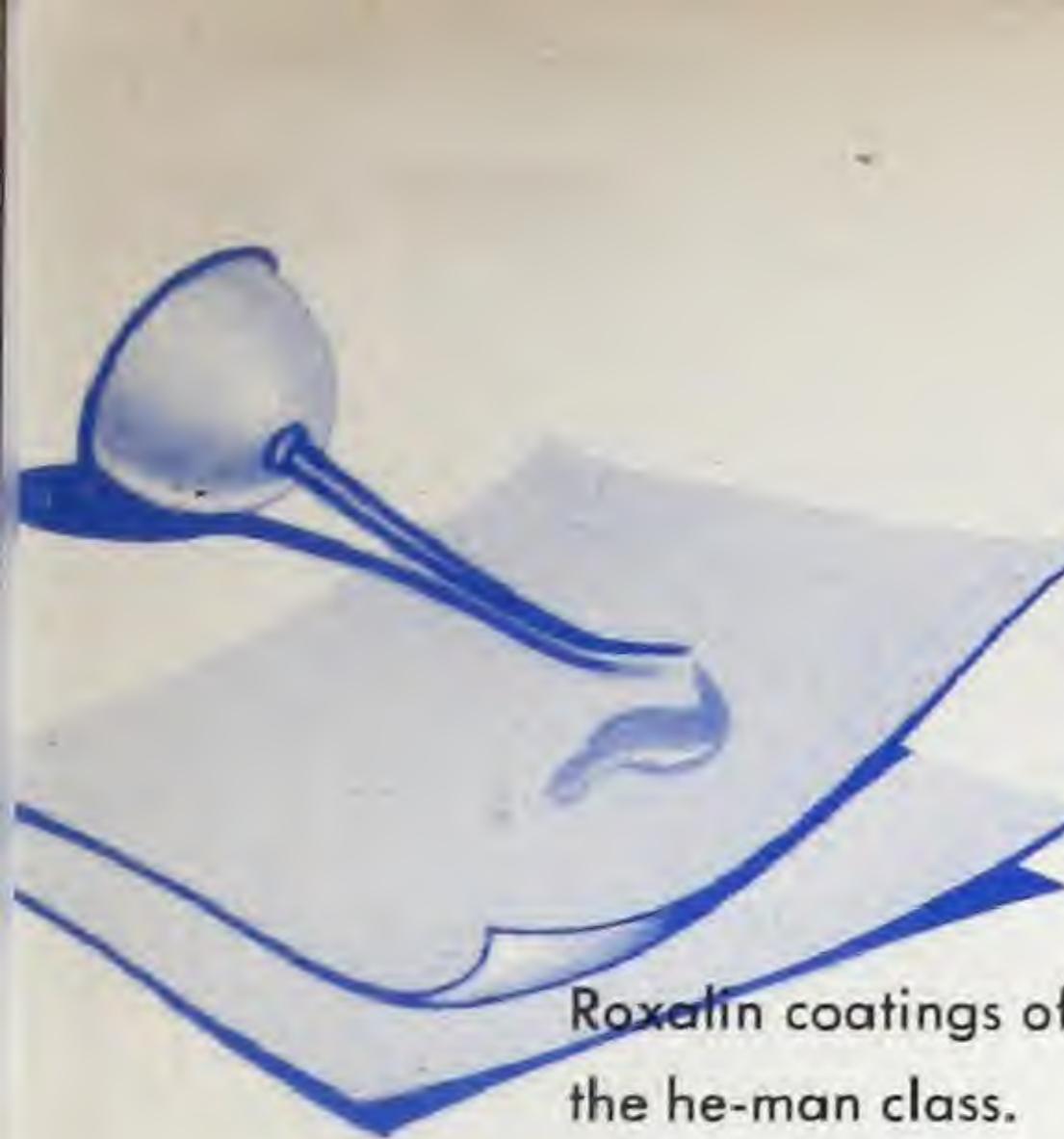
The same type of Roxyn 11CP is employed to increase the moisture and humidity resistance of molded plastic parts used in the electrical and communications field. Fungicides may be incorporated in such films to resist micro-organisms, particularly in the tropics, which cause mold.

SPECIFICATIONS:

Trade Name: Roxyn 11CP Thermosetting Enamel.
Colors: Clear, black, white and all colors.
Gloss: High, satin finish or dull.
Application: Spray.
Curing range: 15 to 30 minutes at 260° F.

DESIRABLE PROPERTIES:

Adhesion.
Hardness.
Resistance to marring.
Resistance to moisture.
Color permanence.
Chemical resistance.
Solvent resistance.



PAPER LACQUERS

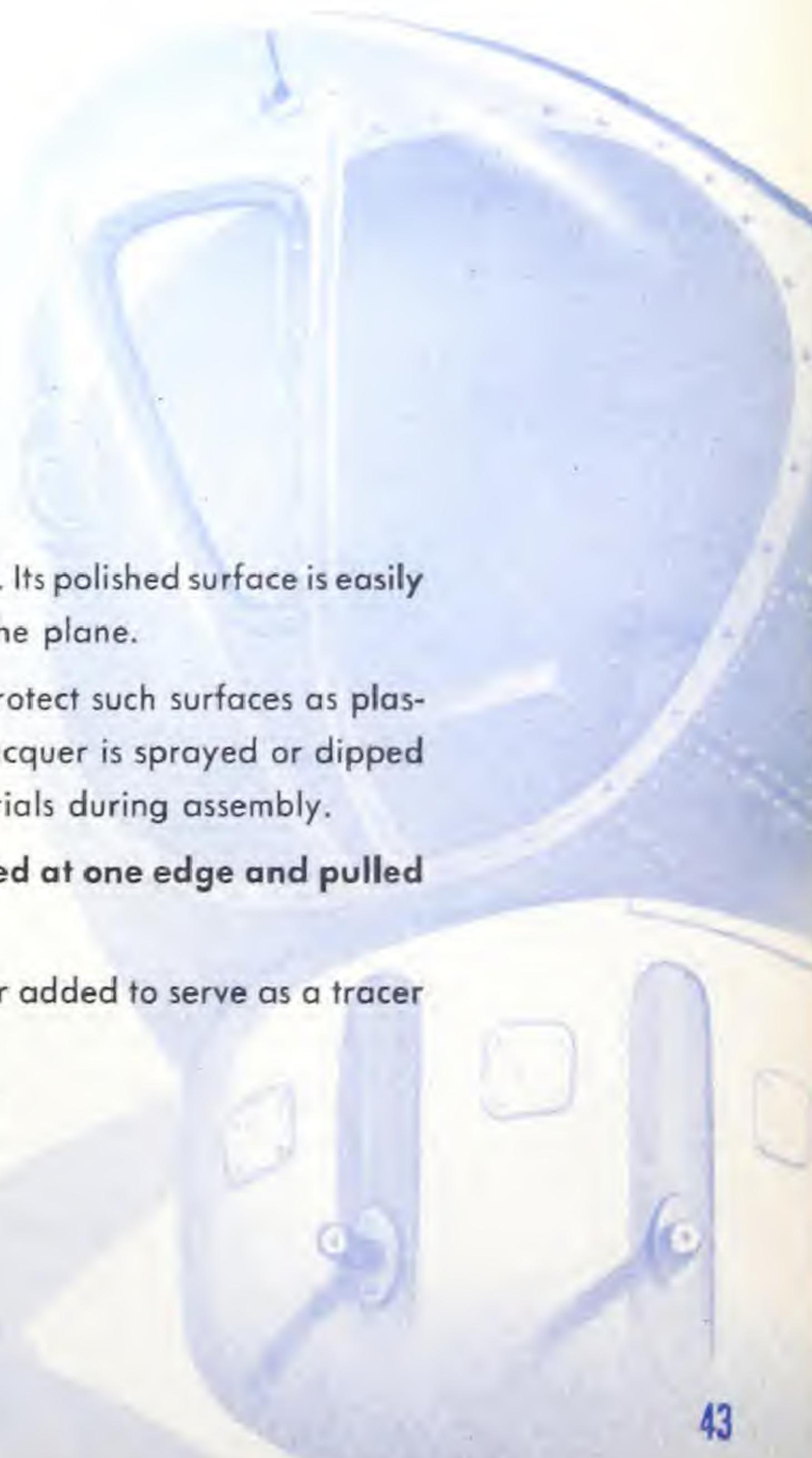
GIVING PAPER A GREASE-PROOF RAINCOAT

Roxalin coatings of polymerizing plastics—which convert to insoluble films—have put paper in the he-man class.

Properly applied, these lacquers are impervious to mineral oil. Now paper does its bit as a grease-proof wrapping for precision tools; as an impervious lining for lubricating oil containers or other such rough jobs.

Similar finishes have been developed for application to the exteriors of cartons to furnish distinctive proprietary colors and block the ingress of moisture. In another case, a film of lacquer, mechanically applied at the mill by a manufacturer of simulated wood veneer, protects the printing by which the wood grain is reproduced with maintenance of true color values, thus providing a readily-cleaned non-porous finish.

These coatings are especially designed for continuous automatic application and involve a drying cycle of merely seconds.



STRIPPING LACQUER

HOW TO SKIN A BOMBER'S NOSE

Assembly lines are rough on the plastic used for a Bomber's nose. Its polished surface is easily scratched or otherwise marred as the busy workers climb over the plane.

A specially engineered protective lacquer has been created to protect such surfaces as plastics, polished aluminum and doped fabrics. Roxalin Stripping Lacquer is sprayed or dipped to form a tough, rubber-like protective coating over such materials during assembly.

And when the plane is completed, **this covering may be loosened at one edge and pulled away from the surface in a sheet.**

Stripping Lacquer comes in clear or with a slight amount of color added to serve as a tracer or indicator of film uniformity.

Here is another of Roxalin's Products of Tomorrow—for Today!

TWENTY YEARS OF ROXALIN SERVICE

These have been a few of the high spots in Roxalin's 20 years of plastic surfacing.

Each in its way illustrates our principle of insuring the best possible protection, the fastest production speed and sales-compelling eye appeal at the lowest cost consistent with these important objectives. These results are made possible by group study of the problems involved by technical men whose sole responsibility is the development of product finishes for industrial use.

The same group of men stands ready to go to work for your products. Drop the attached card in the mail as the first step toward an exchange of ideas.

Take Our Measure

ROXALIN is large enough—to maintain a mature, well-rounded technical staff and support an aggressive development program;

- to utilize the latest and best production equipment and apparatus for precise control;
- to benefit by the most favorable prices in raw material purchases;
- to merit the eager cooperation of raw material suppliers, who are quick to bring us their latest developments; and

ROXALIN is small enough—to be flexible in operation, with no red tape to untangle;

- to insure the management's personal interest in every transaction;
- to permit prompt decisions in matters affecting company policy;
- to take immediate advantage of new materials and methods which result in basic advances;
- to make sure that product improvements are promptly passed along to our customers—

THE LABORATORY IS THE



HEART OF THIS BUSINESS

DECORATIVE ADVISORY SERVICE

Authoritative treatment of color and texture means added sales-appeal. The Roxalin Decorative Advisory Service is available to help you bring these qualities to your products.

